AMERICAN VETERINARY REVIEW.

MAY, 1896.

EDITORIAL.

THE PROFESSION IN ILLINOIS.—One State after another has been added to the list of those securing legislative enactments for the protection of the public and the legitimate practitioners from the imposition of pretenders and frauds, who not only beguile the people of their money without adequate return, but do the honest members of the profession a great deal of harm by destroying confidence in and producing contempt for the profession as a whole. It is, therefore, of the most vital importance that each State should have enacted laws which shall limit this class of empirics and charlatans as much as possible—checking their propagation, at least—to the end of obtaining in time their utter extinction. It is not the competition of such men from a dollars-and-cents point of view that the veterinarian need fear so much, as the degradation and contempt which they heap upon the profession by their acts of rascality and their exhibitions of ignorance, producing in the minds of those who should be believers in the dignity and nobility of a learned science distrust of the whole body without making the distinction of qualification. Then if it be recognized that such legislation is essential to the life, the progress, and the perpetuation of the veterinary profession, the next thing to be sure of is that such legislation be secured. Every State which acknowledges the existence of a profession of veterinary medicine has her association, and these associations have performed the duties of drawing the veterinarians together for purposes of education, fellowship and mutual protection. They are, then, the proper

functionary to propound laws to be presented to the legislators for enactment, and, with few exceptions, wherever they have done so in that spirit of earnestness which characterizes the majority of them they have been successful. Where there are among the membership a few men who make it their business to lead such movements, giving time, energy and activity to it, spurring the others on and forcing enthusiasm by personal precept—backed by a determination to succeed—failure has rarely been the sequel. Where, however, the extent of the energy consists in preambles and resolutions, letters in lofty patriotic style, and bills which once introduced reach the committee-room and there remain under the hypnotic influence of a lack of energy in the profession to arouse it by the righteous demands of its members, there can scarcely be any other result than failure. The example set by the State Association of Virginia, as described in the April REVIEW, is worthy the consideration of all veterinarians in the States having in contemplation the introduction of bills looking to the fostering of veterinary interests. If the reader can point to a field presenting less promising rewards than the State referred to he will have to go beyond the limits of the Union; and yet their energetic State Association not only forced their protecting laws through the Senate and House of Delegates, and had another bill passed establishing quarantine lines, rules and regulations, and prescribing penalties for the violation of the same, but they are now getting ready for dairy inspections, and when this is accomplished will be seeking new methods of benefitting the public and themselves.

It would scarcely seem within the pale of possibility that there could be one of the great States of the West still groping along without a law on her statute-books to indicate that the profession of veterinary medicine existed within her borders. Much less would one conceive the idea that, if such instances really exist, that the great State of Illinois would be found among that class. With her vast live-stock interests, with her great cities, her army of graduated veterinarians, it is incredible that such a condition maintains. Inexplicable as it may seem,

"it is a condition and not a theory." A study of the situation will not fail to give the proper explanation of the causes of the backward condition of the profession in that State. It lies in the State Association, which is far from the influential and powerful body of veterinarians that it should be. It cannot be truthfully said that the State lacks energetic, loyal, and enthusiastic members of the profession, nor that these men have not worked hard for the interests of the whole profession; but the association is not supported by the great body of veterinarians who compose the profession in the State. We observe by the membership-roll that but a small percentage of the veterinarians of Chicago belong to the association; that while the names of three graduated men are upon the pay-roll of the Chicago Police Department, not one is upon the list of members of the State society; that of all those located at the Union Stock Yards connected with the Bureau of Animal Industry, not one takes any interest in the association, and so on in the majority of the ramifications of the profession in the State. The membership of the Illinois State Veterinary Medical Association is less than a single hundred, while the Chicago directory gives the names of one hundred and twenty-nine practitioners in that city alone, and in the whole State this number may be multiplied by five at least. And yet there are less than one hundred members. There is evidently lack of energy, lack of enthusiasm, and there is in consequence lack of legislation.

It is the desire of the State Society, as we are informed by its talented Secretary, Albert Babb, of Springfield, to introduce a bill at the next session of the legislature to bring about the tardy justice to which the extent and standing of the profession of that commonwealth entitles it, and he makes an earnest appeal that this time it shall be successful. Three previous bills have been presented to the legislature at the instigation of the society, and were nobly supported by many of its members, among whom were Williams, Shephard, Casewell, Withers, Hughes, Baker, Trumbower, Wilson, and others; but there was in every instance a lack of support from the rank and file. The

present endeavor is being worked upon different and better lines. It is sought first to augment the membership of the association, and to secure the strength of unity and a singleness of purpose. In our efforts to assist this laudable undertaking of the members for the good of the profession of the State of Illinois, and incidentally of the whole world, we believe we can do so best by this earnest appeal to all qualified men to at once connect themselves with their State Association, and when the time comes to work with it for the attainment of the declared object, and if they do there can be no doubt of its accomplishment. When once upon the membership-roll, attend the meetings, and be amply compensated for the slight sacrifice of attendance in the benefits to be derived from the educational advantages she offers, in the acquaintances formed, and in the satisfaction experienced in having done that which every veterinarian who feels any pride in the profession of his espousal should regard as an honor, a privilege, and a pleasure to do. We, therefore, earnestly advise every reader of the REVIEW living within the State of Illinois to at once send his application for membership to Secretary Albert Babb, 320 South Eighth Street, Springfield, Ill.

AND NOW CANADA.—In the legislature at Winnipeg, on March 11th, according to the *Manitoba Free Press*, when Mr. McNaught moved the second reading of the bill to amend the veterinary association act, and its reference to the committee on private bills, the following discussion took place:

"Mr. Crosby said the practice of passing such acts was becoming decidedly unpopular all through the country. The people were in favor of free trade, applied not only to manufacturers, but also to other classes of the community. Almost the same arguments were used, in favor of the protection of manufactures as for this protection. The idea was that such restrictions raised the standard of qualification, and were thus in the public interest; yet it was a funny thing that the public never applied for any such restrictions, but the applicants were always members of the profession. The house ought to have some information what the qualification had been in the past two or three years. If it was necessary to raise the standard, he suggested that a new association should be formed, and the act made to apply to old members as well as new. He held that the protection should not go further than to provide that no one not qualified should be enabled to collect his pay by process of law.

"Mr. McNaught said the bill was for the protection of farmers as well as the professional men. There were only two veterinary colleges in the Dominion, the one in Mon-

treal, the other in Toronto. The public would get better service by having the standard raised by making the course one of three sessions, of not less than six months each. The bill did not affect those at present in college.

"Mr. Rutherford said it was his misfortune, perhaps, to belong to that very much maligned class, the professional men, who were supposed to live by depredations upon the honest farmer. He enjoyed the sympathy and confidence of the farmers in his district. He had gained this position, first, by showing that he was competent. If he had robbed them by inefficient services his reputation would not stand as high as it did. The member for Dennis had evidently not studied the existing act, or he would have seen that the bill was really opening the doors to foreign competition. Hitherto the act had been inadvertently protective; but in the bill the words, 'Her Majesty's Dominion' were struck out, and the door was opened to properly qualified practitioners from the United States and other countries. The Veterinary Association and the public of Canada had been at the mercy of one man who ran the Ontario Veterinary College, an institution without a matriculation, a light final examination and a very short course, and had made out of it half a million dollars. The college in Montreal was in connection with McGill University, and was under Dr. McEachran; it had a three-years' course of study. Mr. Rutherford showed the difference between the standing of Canadian medical students and veterinary students in England, the former being enabled by a 3 to 6-year [month] course to become members of the Royal College of Surgeons, while graduates of the Ontario Veterinary College were compelled to matriculate and put in a four years' course. The bill was simply an attempt to raise the standard of veterinary education in Canada. In France, which sent out some of the very best veterinary surgeons, there was a seven years' course; Germany had a six years' course; England a four years' course; colleges in New York and Chicago a three years' course; Harvard and Philadelphia a four years' course.

"Mr. Jonasson thought the bill premature; the province being still too sparsely settled, so that it was difficult to secure qualified practitioners.

"Mr. Sirett pointed out a weak point in the bill; the country was already flooded with the class of professional men objected to, and under the bill they would be allowed to go on; the result would be to give them a practical monopoly.

"Mr. Rutherford replied that these men would die off in time, and their places would be filled with properly qualified men. There was, he admitted, some element of reason in what the member said, but how could they get over the difficulty? If the bill should have no other effect it would compel the institution in Toronto to add a year to its course and raise its curriculum.

"The motion was carried."

BUFFALO.—Never has an approaching meeting of the U. S. V. M. A. presented such evidences of wide-spread interest nor borne such premonitory symptoms of success as does the coming meeting at Buffalo. On another page will be found a letter from Secretary Gribble, of the Ohio State Veterinary Medical Association, giving notice that the Buckeye State will hold their meeting at the same time, in the same city, and the New York State Society will follow on the 4th and 5th. The local committee, having in charge the preparations for the entertainment and comfort of the guests, are omitting nothing to have every detail as complete as possible, and it is the prediction of all experienced association men that the outlook for a surpassing meeting for 1896 is brighter than ever in the history of the National

Association. The location of the meeting-place, with its many attractions for visitors, including Niagara Falls, will permit of the widest range of judgment on the part of the local committee. The REVIEW will keep its readers posted on the progress of the preparations, and it urges upon all who are to read papers at this meeting the importance of early notifying the Secretary, Dr. S. Stewart, 7½ South James Street, Kansas City, Kansas, so that no delay may be caused in the arrangement of the intellectual programme.

OUR esteemed contemporary, the *Journal of Comparative Medicine and Veterinary Archives*, gave its readers a treat for April by presenting them with an extra large number, it consisting of about a hundred pages of reading matter, and quite a fair showing of new advertisements, the majority of them being for this special issue only. The enterprise of the management is worthy of a generous response from the veterinary public, for whose interest and profit all veterinary journals in this country are published, as it will be many years hence before such an undertaking can be made to be a profitable enterprise. The REVIEW for the same month, without making any claim to be printing a souvenir edition, was forced to publish 96 pages of reading matter in order to do justice to the great amount of important and valuable material that is furnished by its collaborators and correspondents. The members of the profession who are readers should, therefore, do what they can to induce all of their brethren to become subscribers, so that this great educational and protective work which the journals show such a disposition to foster and extend shall be carried on by their support and encouragement. Whatever helps the journals helps the reader.

THE PRIZE OF THE U. S. V. M. A.—It would appear from the number of letters received by the REVIEW that the idea of having the competition for the prize of the National Association continued was a very popular one, and that the failure to realize

substantial benefit and interest from it has been largely due to the conduct of the competition by the various prize committees who have had charge of it. One of the many letters received by us is printed in this issue from Dr. Hinebauch, which shows a careless administration of the interests of both the association and the contestants, all of which is quite sufficient to produce the lost interest that the chairman of that committee recently complained of and urged as a reason for discontinuing the contest for an indefinite period. The REVIEW urges upon the National Association the continuance of the prize offer, with the addition of the one offered by this journal, with the full assurance that it will stimulate original research and awaken an interest in individual investigations that cannot but redound to the credit and profit of the science of veterinary medicine everywhere.

IN the reorganization of the Kansas City Veterinary College, Dr. S. Stewart, of Kansas City, the efficient Secretary of the U. S. V. M. A., has been appointed Dean of the Faculty, and his sterling qualities as an executive will undoubtedly redound to the benefit and credit of the college. Under his directorship, we predict much success for the institution.

ORIGINAL ARTICLES.

MILK AS A FACTOR IN THE CAUSATION OF DISEASE.

BY JNO. M. PARKER, D.V.S., HAVERHILL, MASS.

A Paper read before the Massachusetts Veterinary Medical Association.

In considering the subject of "Milk as a Factor in the Causation of Disease" I shall not attempt to do more than skim the surface. The subject is so large that I have been unable to do more than touch on some of the more important parts. There are several points of great interest closely connected with this subject, such as, "the influence of food stuffs on the healthful-

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ness of milk," that I have not touched upon and that I hope to be able to take up at some future time.

Milk is the natural food for infants. In a perfect state it is the most perfect food we know, and of course it follows that it is of the utmost importance that it should be procured and placed on the market in as perfect a condition as possible. And here the study of bacteriology has been of the utmost importance to the dairy farmer. Housewives used to dread the thunderstorm, because the condition of the atmosphere was supposed to exert a peculiar influence on milk, causing it to sour. The study of bacteriology has shown the fallacy of this theory. The warm weather preceding the storm favors the development of germ life, which finds its way into the milk, causing it to sour and curdle. To prevent this taking place and to keep milk pure and sweet, it is only necessary to prevent the entrance or development of the various forms of bacteria: if this is done milk will keep almost indefinitely.

Practically, however, it is almost impossible to keep milk perfectly free from germ life, but with a little care the number can be greatly reduced.

As a rule the greatest number of bacteria find their way into milk during milking. The milker usually rests his head on the cow's flank immediately above the pail, and of necessity dirt and scurf and hairs from the cow find their way into the milk. The cow has possibly been standing in a mud-hole in the pasture, and the udder, body, flank and tail are probably covered with dirt and filth and decaying animal and vegetable matter, and of course the spores and germs from the grasses, marshes, and stagnant water are brushed and shaken off during milking, and drop into the milk. One has only to take a casual glance at the strainer after the milk has passed through to see straws, and hairs, and scales from sore teats or udders, along with fæces and dirt and filth of all kinds, all of which are teeming with germ life, and he will realize what necessity there is for a change of method, to keep pace with our increased knowledge on the subject.

Contamination, however, does not only come from the cow, but the milkers' hands and clothing, as well as pails, strainers, receptacles for holding and cooling milk, milk jars and skimmers, all should be sterilized. It is not sufficient to rinse out a pail with warm water. Pails should be washed with soda solution and then with boiling water, and if there are any seams in the pail, these should be scrubbed with a brush (all seams in the pail, without exception, should be soldered, otherwise the seam itself will be a receptacle for micro-organisms). Milkers' hands should be thoroughly washed with soap and warm water, and instead of any old dirty clothes being used for milking, clean overalls should invariably be used. The udder should also be thoroughly washed before milking. In this way the micro-organisms that are not washed off will adhere to the damp surface, and will not be so likely to fall off into the milk. Cows should also be groomed and curried each day as thoroughly as a horse. These are no idle fancies, but are well established facts, that are well illustrated by several investigators, notably by Dr. P. H. Bryce, of Ontario. In Dr. Bryce's experiments, gelatine plate cultures were poured, ½ c. c. of milk being added for each culture. In *three days* at a temperature of 66.70° F. the various plates gave the following results:

I Plate. Direct from the cow, no precaution except that the milk was received into sterilized test tubes: 15 micro-organisms per c. c.

II Plate. Pail in stable receiving milk from different cows, milk strained through a cloth: 720 micro-organisms per c. c.

III Plate. Milk from cooling apparatus after cooling: 884 micro-organisms per c. c.

IV Plate. Milk from bottles immediately after filling: 1640 micro-organisms per c. c.

These experiments plainly show the greatest source of contamination. In the first plate, milking directly into a test tube, after three days at a temperature of 66.70°F. there were only 15 micro-organisms per c. c. This milk came directly from the cow into a sterilized test tube and of course there was no outside

contamination. In the next plate there were 720 germs in each c. c. after being milked into pail and strained through cloth. After cooling there were 884, and after filling into bottles there were 1640. As the milk came into contact with more surface the numbers increased rapidly, and this, remember, on a farm where the milk was handled with unusual care as regards cleanliness.

Experiments conducted by Dr. Peters show another occasional source of contamination, especially in cows after standing in stagnant water, or lying on dirty floors. These experiments were carried out under careful antiseptic precautions. Clean suits were put on, the cows' udders, teats, flanks, sides, groins and abdomens were washed with bichloride solution, they were milked into sterile bottles, four cows being used in the experiments.

Table marked "I" represents milk in first half of milking and drawn by hand directly into sterile bottles.

No. II represents milk drawn through sterile canula into bottle.

Nos. III and IV represent milk drawn by hand after more than half the udder had been emptied.

The columns marked A, B, C, D, represent the milk from the four cows, the figures showing the number of colonies of bacteria in each plate.

	A.	B.	C.	D.
I.	141	167	19	53
II.	0	0	1	2
III.	0	6	0	0
IV.	0	0	1	2

It will be noticed that in the first milk drawn from each cow there were a number of colonies of bacteria, while the later portion of the milking were practically free from bacteria, the milk being drawn into sterile bottles.

It would seem, then, that as a matter of practical importance it would be well to strip the teat once or twice before milking into a sterilized pail. In this way the micro-organisms which evidently find their way into the milk duct would be

washed out. It also emphasizes the importance of cleanly surroundings for cattle, for we find that the cows referred to in Bryce's experiments were handled with unusual care as regards cleanliness, with the evident result that the first of the milk was not contaminated, as in Dr. Peters' experiments.

Not only should the greatest care be exercised as to cleanliness, however, but after ærating the milk to rid it of bad odors, it should be rapidly cooled to about 41°F., the cooling of milk preventing or retarding the growth of the various micro-organisms contained in the milk. To again quote from Dr. Bryce, "Milk that had been kept in a cool place, and then showed 10,000 micro-organisms per c. c. was afterwards allowed to stand in a warm room some six hours, and during this time the bacteria increased from 10,000 to 100,000 per c. c."

Experiments by Feer showed the same results. "In examining milk a few hours after milking that had been supplied to a Children's Hospital, he found in winter 50 to 70,000 bacteria per c. c. In summer, under the same conditions, they averaged 300,000 and after standing a few hours at ordinary temperature they multiplied to 14,000,000. (Annual of Med. Sciences.)

These experiments show the importance of cleanliness and of keeping the milk at a low temperature, not only at the dairy farm, but after delivery to the customer. Many a farmer gets blamed for delivering impure or sour milk, when no one is at fault but the ignorant or careless householders. Want of knowledge or want of appreciation of the importance of absolute cleanliness in the care of milk is perhaps one of the greatest, though unrealized, difficulties that health authorities will have to contend against.

Of all infantile disorders cholera infantum or milk diarrhœa is by far the most fatal, and thousands of children die every summer from this cause alone. In referring to milk diarrhœa, Keating says, "Its character and type are modified by three important factors: I. Climate or season. II. Social condition. III. Food. It is not now believed that heat *per se* causes diarrhœa. It is only a powerful, indirect factor, lowering the vitality of the pa-

tient and favoring fermentive changes in the milk. It is to the feeding bottle and its contents that attention must be specially directed in the prevention of autumnal diarrhœa.

It only occurs in hot weather. A temperature of 60°F. or over favors the development and multiplication of the various micro-organisms that are the prime cause of this disease. There is no specific micro-organism present, but the presence of all toxicogenic bacteria (or bacteria that give off poisonous gases) in milk or food of any kind must be avoided. Infants fed exclusively on sterile foods are not liable to be attacked, and various methods have been tried to prevent the development of these organisms in milk. The principal of these are the pasteurization and the sterilization of milk, and in European countries and in the West these methods are adopted quite extensively.

The pasteurization of milk consists in the placing of milk in sterile bottles or jars and exposing them to a temperature of from 150°F. to 180°F. Milk treated in this way, cooled to 41°F. and kept at a temperature below 60°F. will keep sweet and pure for several days and "sweet milk may be heated to 180°F. without any coagulation or burning or any material change taking place." (Year Book Dept. of Agr., 1895.) To pasteurize milk with the best results, however, milk must be fresh. It should be perfectly pure, and as free as possible from bacteria. Where there are any great number of micro-organisms present, and where there is the least tendency to sour, even when so slight as not to be perceptible to taste, the heat will coagulate the albumen, rendering it more or less indigestible.

All germs are not destroyed at 180° F., however, and some even multiply at that temperature. To totally destroy all germs sterilizing at a temperature of 230° F. is required. On the other hand, that amount of heat would cause a coagulation of casein, and would injure the taste and appearance of the milk, but all germs and spores can be destroyed by interrupted heating, *i. e.*, by submitting the milk to a temperature of 180° F. and cooling, repeating the process for five or six consecutive days. The rapid change of temperature from hot to cold favors the keeping

qualities of the milk by either killing the bacteria or lessening their vitality so that a long time is required before they can begin to multiply. (Year Book Dept. Agr., 1896.)

It must be remembered, however, that the pasteurization or sterilization of milk is not of itself an advantage to milk. It is undertaken simply for the purpose of destroying the activity of that which is foreign to milk and which finds its way into milk either during or after milking. Milk from healthy cows is of itself absolutely pure, and but for the entrance of foreign organisms would keep indefinitely. It follows, then, that an effort should be made to prevent the entrance of these foreign matters. Much can be done in this way—and for their own protection dairymen ought to do as much as possible and go as far as practicable in this direction.

Some of the principal pathogenic micro-organisms found in milk are those of tuberculosis, typhoid fever, cholera, diphtheria, scarlet fever, puss cocci, streptococci, pneumococci, etc. The most important of these are probably the specific organisms of tuberculosis, typhoid, cholera, diphtheria and scarlet fever. The first two have each their own peculiarities which make them specially important. Tubercle bacilli because they are carried from the cow direct, and come into the milk when present by way of the udder ; the typhoid fever bacilli because it multiplies rapidly in milk at ordinary temperature, so that once it finds its way into milk it will multiply rapidly and become a serious source of danger. As a precautionary measure, then, the greatest care should be exercised in using water for washing cans and other utensils to make sure that there is no possibility of contamination from this source. A most interesting illustration of the way in which typhoid fever is spread by the use of infected milk is reported to have occurred at Marlybone, where a farm hand was suffering from typhoid fever. A large number of persons taking milk from this farm became sick. The outbreak of fever following from house to house appearing in those houses supplied from this farm, and missing the intervening houses, so that in a certain street all those families that had been in the

habit of getting their milk from this farm were sick, while their neighbors escaped.

A case is also reported where after cans were thoroughly washed with soda and boiling water they were simply rinsed out before milking, with clear cold water from a well. The well afterwards proved to be infected and a large number of persons became sick from this cause. Cholera, scarlet fever and diphtheria, as well as other infectious diseases, may be communicated in the same way, but the immediate danger is not so great, because these organisms will not, as a rule, multiply in milk, so that there is not the same danger of the rapid spread of the disease. These organisms are all destroyed by heating to 180° F.

The bacillus of tuberculosis stands in a class by itself, both because of its special characteristics and because of the amount of work that has been done on the subject. The greatest diversity of opinion prevails as to the danger of tuberculosis from the use of milk. What, then, are the facts in the case?

We find, to begin with, that deaths from consumption are steadily decreasing. In Massachusetts the percentage of deaths for each 1000 of population from 1883 to 1893, inclusive, has fallen from 31.6 to 22.7. In New Hampshire also the statistics show a gradual falling off in the number of deaths from phthisis pulmonalis. The same decrease appears to a marked degree in Great Britain.

This decrease of course has nothing to do with the use of milk, but is due to an increased knowledge of the subject and to improved sanitary conditions generally.

A great deal has been said and written on the question of the infectiousness of milk, when the udder is not infected. Now, if we take Prof. Ernst's work on the subject, we find that even Prof. Ernst does not claim that the danger is so very great. He simply says that there are cases that are dangerous, even where the udder is not affected, but in judging of the amount of danger it must be remembered that all his cases were picked out by physical examination alone. No tuberculin was used, and it is just as possible to pick out these bad cases now as it was then,

so that really no milk from such cows as he experimented with should be on the market.

In Dr. Ernst's cases 36 cows were experimented with, and the bacillus was found in the milk of 12 of these 36.

In the first series of experiments 88 guinea pigs were inoculated with milk from 16 of these tuberculous cows, and the milk from only six of these cows was found capable of producing the disease, and only 12 of these 88 guinea pigs became infected.

2d series—90 rabbits were inoculated with milk from 19 different tuberculous cows. The milk from only 4 of the cows produced the disease, and only 6 of the 90 rabbits became infected.

3d series—48 rabbits were fed with milk from 5 tuberculous cows and only 2 became diseased, both being fed with milk from the same cow.

Practically, then, when these well marked cases gave no greater results, it would seem that with the exclusion of these advanced cases, the milk would be harmless, unless the udder was affected. This seems to have been the opinion of the Royal Commission appointed by the British Government to consider the matter. It is also the opinion of such able authority as Prof. Theobold Smith, late of the Bureau of Animal Industry. In the Year Book of the U. S. Dept. of Agr. he says:

"We may, for convenience and clearness, typify those stages:—

"1st. In the earlier stages of the disease, provided the udder is normal, the milk is free from tubercle bacilli.

"2d. In the more advanced stages, provided the udder is normal, the milk may or may not contain tubercle bacilli. If the disease has become generalized, the indications are that at some time or other, tubercle bacilli may pass into the milk. This passage is revealed at autopsy by disease of the glands of the udder. The indications are that this passage is largely temporary, perhaps lasting only a day before the bacilli are caught up and filtered out into the lymphatic system.

"The indications are, furthermore, that comparatively few bacilli pass through the udder. The udder itself does not favor

their development there, and the closest inspection fails to reveal any augmenting foci of disease. These statements are based on careful examination of slaughtered cattle, and the thorough testing of milk from advanced cases."

Practically, then, the danger is confined to cases in which there is disease of the udder; such cases are comparatively rare. There are, I believe, no authoritative statistics showing more than from 2½ to 3½ of cases of disease of the udder among tuberculous cows. My own experience does not give as high a percentage as that. In Pennsylvania, Dr. Ridge gives the percentage of tuberculosis of the udder in the neighborhood of 3 per cent. Dr. Peters gives it as "very small." Dr. Burr gives 12 cows out of 300 cases of tuberculosis as having diseased udders, and Theobold Smith says, "fortunately tuberculosis of the udder is rare. Among 200 infected animals he has only seen one case of udder disease, and 16 others, which, according to post mortem studies, may have shed at one time or another, tubercle bacilli into the milk in small numbers, but which had no recognizable disease of the udder itself." He further says "the large percentage of udder tuberculosis reported by several writers lately is incompatible with all former statistics, and indicates either an unprecedented condition in certain localities, or else an error in diagnosis."

And finally, in the Annual Report of the State Board of Cattle Commissioners, in reports of post mortem lesions, while disease of lungs, mediastinal glands, bronchial glands, etc., are reported, there is no mention made of even a single case of disease of the udder.

But the best evidence of the absence of great danger is found in such statistics as are collected by Dr. Watson and presented in the Report of the State Board of Health of N. H. for 1892. These statistics are collected from slaughter-house reports, principally in Germany, and, as Dr. Watson points out, "calves are fed exclusively on cows' milk, so that they offer by far the best of natural experiments as to the amount of danger to human beings from raw cows' milk."

He shows that among

23,557	calves slaughtered	there were	2	cases of	tuberculosis.
30,477	" "	" "	1	"	"
143,218	" "	" "	35	"	"
23,592	" "	" "	1	"	"
800,000	" "	" "	5	"	"
24,766	" "	" "	1	"	"
1,153,695	" "	" "	231	" .006%	"

"The only explanation of these figures," says Dr. Watson, "is that there are few bacilli in the milk of most tuberculous cows."

Taking everything into consideration, then, the only conclusion we can come to, is that *practically and under natural conditions* the greatest danger from the general use of cows' milk, especially by infants, is the part it plays in the ætiology of cholera infantum.

In the mortality report of the Mass. Board of Health for 1892, it is shown that there were,

5739	deaths	from	phthisis at all ages,
2898	"	"	cholera infantum,
1455	"	"	diphtheria and croup,
827	"	"	typhoid fever,
669	"	"	scarlet fever,
80	"	"	measles.

In this report we see cholera infantum placed next to phthisis in the death rate. Now, in considering this subject it must be remembered that the latest statistics show that by far the largest proportion of cases of phthisis occur in people who have recently moved into houses previously occupied by consumptives. While, on the other hand, cholera infantum is due almost solely to the ingestion of pure milk. Further, the deaths from phthisis include deaths at all ages, while cholera infantum occurs only in children under five years, and practically under one year old.

In New Hampshire the proportion of deaths from cholera

infantum is even greater. For the year ending 1891, the Report shows

695 deaths from consumption, and
486 deaths from cholera infantum.

The Report then remarks "cholera infantum was the cause of more than one-third of all the deaths from prominent zymotic diseases in New Hampshire in 1891."

In Ontario for the year ending 1892, in a population of over 2,000,000, phthisis caused 2592 deaths and cholera infantum 670, but among the 23,190 children under one year old, cholera infantum caused 600 deaths, while phthisis caused 283 deaths.

These figures are pregnant with meaning. Cholera infantum, or milk diarrhœa, is purely a disease of infants, due as a rule to improper feeding, with impure milk. Yet in Massachusetts it was the cause of 2898 out of 11,668 deaths from the six most prominent zymotic diseases. In other words, cholera infantum, was the cause of one-fourth of all deaths from all prominent zymotic diseases in Massachusetts in 1892, and of more than one-third of all deaths from all prominent zymotic diseases in New Hampshire in 1891.

Cholera infantum is essentially a preventable disease and by the simple introduction of better methods of keeping and caring for dairy stock, and milk, and by a realization of the absolute importance and necessity of perfect cleanliness, this source of danger can be immeasurably lessened. Knowing what is needed, then it becomes our duty to spread information on this subject by every means in our power.

If improvements are not introduced, and if advantage is not taken of our increased knowledge on the subject, then the prophesies of certain Western men may come true, and Western pasteurized milk may enter into serious competition with the dairy industry in the East. It behooves our farmers, then, to brace up, and for their own sake do what they can to improve the purity and keeping quality of our milk supply.

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PATHOGENESIS AND DEVELOPMENT OF DISEASE.

By W. L. Rhoads, D.V.S., Lansdowne, Pa.

A Paper read before the Pennsylvania State Veterinary Medical Association.

During yesterday's meeting I heard some of our fraternal friends say what they thought we should do to keep up with the times. To do this we have determined the veterinary profession shall become the foundation upon which the science of protecting the public health shall depend. We can best accomplish this object by a thorough and comprehensive study of the origin and development of disease—which is any departure from the state of health, either functional or organic. Though the physician attempts to regulate and control the disease after it has found lodgment in our systems, the veterinarian strives to prevent its introduction into our bodies by purifying the meat and milk supply of his community, as they are probably the most potent factors in the development and transmission of disease. Meat left uncovered in the open air for a few hours in a moderate temperature soon becomes thoroughly infested with bacteria, especially if moisture is present.

Milk is a most favorable media for the nourishment and development of the germs of disease. These germs may come from the cow, as in the case of tuberculosis or parenchymatous mastitis, which has produced throughout a milkman's route gastro-intestinal catarrh, or the germ may be added to the milk from human sources, as in the case of scarlet fever, diphtheria or typhoid fever. Every epidemic of typhoid in civilized and enlightened countries is now traced to or ascribed to infection from milk or water and milk has proven to be the better media for its transmission. As a considerable percentage of the milch cows in a civilized country are consumptive, and as germs of this dread disease are transmitted through the milk from such cows to human consumers, it becomes necessary for enlightened and progressive boards of health to assume the sanitary supervision (through their veterinarian) of the milk supplies of their respective communities. I realize I

have selected a subject far beyond the limit of my brief experience, and those practitioners who fail to keep abreast with the current of veterinary and medical literature are losing much valuable information on this topic of most vital importance. I feel no question in medicine of late years has occupied so much space and thought or caused so much scientific research and experiment as the origin, development and communication of disease. We to-day have a knowledge, though yet limited, of organisms infinitely small, the existence of which was not suspected by the ordinary practitioner till within the last few years. When we consider that some of these germs when mature are but seven one-thousandths of an inch in length and their breadth scarcely one-fifth their length, our ignorance of them in the past is not surprising. We now feel that we understand fairly well the relation such organisms bear to our own as well as the organisms with which we have to deal in the lower animals in health and disease.

It is true "many of the lower organisms" both animal and vegetable, have for years been recognized as the direct cause of local maladies, both external and internal, for many of these parasites were of sufficient size to be in the aggregate seen by the naked eye or a low power lens. When we realize that many of the most potent germs do not exceed $\frac{1}{1000}$ m. m. in diameter, these bodies so light and small are easily influenced by movements of wind, rain or change of temperature, this coupled with the fact that no so-called case of spontaneous generation has withstood rigid investigation. We have a faint idea of the great good done by Bonnet, who between 1740 and 1793 advanced the theory of universal dissemination of seeds and spores known as the pre-existing germ theory (this is the oldest and probably the most widely accepted theory ever known in history of medical science). During this same period Needham came to the conclusion that infusion of organic matter placed in hermetically closed vessels, after boiling, brought forth minute organisms; this is known as the vegetative or producing force theory. The method of study introduced by Needham forms the basis of all subsequent

experiments on this question, as well as the culture researches in connection with the organisms of disease. Dr. Budd, in 1849, claimed the body was invaded by organisms which under certain conditions and surroundings caused infectious diseases. It is of late years, in fact since '70, that we have been shown the relation of micro-organisms to those diseases which most closely interest the veterinarian—as anthrax, septicæmia, cholera in its various forms, lupus, glanders, rabies, pleuro-pneumonia, favus and the greatest of all scourges, tuberculosis. Koch and Pasteur have done much in the latter years to enlighten us upon this subject. The satisfying of all the requirements essential to prove a germ indigenous to a disease is difficult and has led to what may be termed a special branch of medical art.

Brefalo has observed that bacterium may divide once every half hour and its progeny repeat the process in the same time, thus producing in 24 hours segments amounting to many million spores or resting cells; these are the smallest segments or cocci into which the filament at length breaks up. Yet it is questionable whether the bacteria suspended in the air are so plentiful as was once supposed. Formerly the great difficulty seemed to lie in distinguishing accurately between a germ and spore, the words being used in an indefinite sense. A *germ* is the first principle of anything that has life whether animal or vegetable, a growing point from which the life and organization of the future plant are to spring, while a *spore* is a fecundated seed of a lower organism, and though it may be practically considered the originator of a disease, in a true sense it cannot be, for the elements of which it is composed derive some consideration. Yet if the pre-existing spore is not present it then becomes most difficult to account for the minute infusoria found swarming fully developed in putrefying fluid or flesh—in themselves scientifically healthy, though not rendered antiseptic, though they may be placed in antiseptic surroundings. It has been frequently shown that pure culture of fungi grown on gelatine, decompose, and the fluid in which they are soon swarms with bacteria. The fungi being so minute we have little time knowledge of

them and the infusoria might come from fungi through development by hetrogenesis. Would this not lead us into the belief that the light giving forces are in themselves spontaneous generators of disease from germs pre-existing? Yet we are told by scientists of to-day that light is a most potent factor in the destruction of ptomaines. Prof. Ward of England, going so far as to assert after experimenting with electric light that the light rays, and not the heat rays, are destructive to bacteria and that among the different colored rays the blue rays are the most effective for this purpose, while another scientist claims the yellow or orange rays to be most conducive to the propagation of bacteria, have not heard of their growth in total darkness. Anthrax was formerly attributed to a minute microscopic fly, which, on account of their greatn umber, formed a blue mist in the atmosphere. This was the first disease to have conclusive proof offered of its germ origin. The question of its etiological relation was placed on a scientific basis by inoculation with the pure culture of anthrax bacillus. To Pasteur belongs the credit for experiment or preventive inoculation with his attenuated virus in many diseases. Animals inoculated with cultivated bacillus show immunity from disease when inoculated with the deadly wild germ. The cause for this has not been as yet determined.

Though Matschnikoff in 1884 advanced the theory that the white corpuscles eliminated the bacilli from the blood, germs as a rule are very tenacious of life, and, while light is now believed to destroy them, it has been but a short time since scientists told us that boiling would destroy them,yet they have been known to withstand as low as 100° C. and as high as 110° C., the ripe spores showing the greater powers of resistance. They flourish best in moisture, at a temperature of about 35° C. and readily live on remains of dead organisms or truly parasitical are nourished direct from a living body; as a rule their ends are rounded and they frequently present a beaded appearance if not isolated. Though their length may vary, they are always evenly proportioned. I trust the future will give such magnifying

powers that we may be enabled to see that each of these spores is an organism within itself, though communication with its neighbor may be essential to its propagation or development. We are striving to learn the why and the wherefore, the cause and effect, and with a proper knowledge of these diseases may be treated intelligently, practically and successfully. It is for the accomplishment of this end that animals, from the tiny mouse to the spiteful terrier, have been subjected to injections of different brands of germ life, and while they may be dismissed slightly damaged or sent to their last reward, the slight inconvenience is not to be compared with the knowledge gained. The veterinarian to be abreast with the times must have in his medicine chest an anti for pneumonia, tetanus, tuberculosis, rabies and many kindred diseases.

Disease is largely a problem of political economy and is influenced by the ebb and flow of human affairs.

An era of prosperity greatly reduces disease, the people more readily recognize the difference between good and bad food, an adequate amount of rest, and more perfect sanitation. When masses have become thoroughly aroused and realize these to be essentials to health and longevity, then disease will become a brief infrequent reparative process. I sincerely thank you for your kind attention and consideration.

No living germ or disease can resist the antiseptic power of essence of cinnamon for more than a few hours, is the conclusion announced by M. Chamberland as the result of prolonged research, and in M. Pasteur's laboratory it is said to destroy microbes as effectually as corrosive sublimate.

PRESIDENT W. H. HARBAUGH and his associates of the Virginia Veterinary Medical Association, not content to rest under their well-earned laurels in having obtained so much for their profession, not only of their own State, but throughout the whole country, in the legal recognition they so recently secured, are now striking for dairy inspection in all the cities of the State. It does seem that if such laws can be enacted in the Old Dominion that our brethren should take courage everywhere.

THE THEORIES OF IMMUNITY.

By E. P. Niles, D.V.M., Blacksburg, Va.

Read before the Virginia State Veterinary Medical Association at Richmond, Va., January 2, 1896.

No branch of the science of biology is receiving at the present time more deserved attention than immunity. It may also be said that less is known about this part of the science than of any other.

It is not my intention to offer anything new on the subject. If I even succeed in placing before you in an intelligent manner the views of our eminent bacteriologists I shall feel that my feeble effort has not been in vain. In the beginning of this paper I shall not attempt to offer a definition of the term immunity, but shall confine my remarks to a discussion of the theories of immunity, and a few of the experiments brought to bear in support of the same.

Immunity may be discussed under two heads, viz., natural and acquired. It is a well-known fact that certain bacterial diseases affect a certain class of animals, while others are exempt from the action of these germs. Glanders is essentially a disease of the equine species, while the bovine species show perfect immunity to the disease. The dog and rat are decidedly immune to anthrax, while it is readily communicated to the equine, bovine and human races by inoculation. Even age in animals of the same species seems to influence the degree of immunity. In the human family scarlet fever and whooping-cough are considered children's diseases, since they are much more prevalent in them than adults. Diphtheria is also more frequently met with in children. At the same time, however, I have heard physicians assert that a young baby will not contract the disease. If this be true, it can only be explained by the supposed germicidal action of the thymus gland, which rapidly disappears after birth, and possibly some influence of the mother's milk. In the lower animals anthrax is known to be

much more fatal to the young, while in Texas cattle fever the old seem to be more susceptible.

It is said that the blood of naturally immune animals when injected into susceptible animals will counteract the effect of certain disease-producing germs. For instance, a small quantity of the blood of a frog when injected into the circulation of a mouse will render that animal immune to anthrax, but has no such action in reference to other diseases. It would seem, then, that an animal or person may be immune to certain diseases and that the blood of such an individual has, to a certain extent, the property of producing immunity in other subjects.

Just what this immunitive substance is remains to be discovered. Many theories have been advanced but they all lack positive proof.

Before discussing these theories in detail it must be remembered that in susceptible animals pathogenic germs, when introduced into the system, multiply with great rapidity, while in non-susceptible animals no such multiplication takes place.

In naturally immune animals, then, there must be some substance which prevents this development of the germ, or some condition of the system unfavorable to its growth.

In some the body temperature seems to be the unfavorable element; since certain bacteria only grow in very narrow limits of temperature. The common fowl is generally supposed to be immune to anthrax under normal conditions, but Pasteur has shown that they may be rendered susceptible by being refrigerated after inoculation by immersing their bodies in cold water. On the other hand, Koch has pointed out that sparrows, whose normal temperature is as high as that of the fowl, contract the disease without refrigeration. From the above we are led to the conclusion that the high temperature of the fowl is not the only factor brought to bear in rendering the fowl immune to anthrax. Gibier has shown that the anthrax bacillus will multiply in both the frog and fish if kept in water at a temperature of 35 degrees centigrade; both being immune under ordinary circumstances. The bacillus of anthrax, however, grows under

quite a wide range of temperature and it is more than probable that some agent other than the body temperature of the subjects mentioned has something to do in causing this natural immunity. There are, however, certain pathogenic bacteria to which the above theory may hold good, *e. g.*, the tubercle bacilli, which require a temperature of 37 degrees C. or more for their multiplication.

The reaction of the body fluids, according to the experiments of Behring, seems to have a decided influence in producing the decided immunity of the white rat to anthrax. The blood of these animals is decidedly alkaline, to which is attributed the remarkable resistance of these animals to virulent cultures of the bacillus of anthrax. When so fed, however, as to render their blood acid they readily yield to the disease. It has also been shown by Behring, Nuttall and others that recently drawn blood of naturally immune animals has a decided germicidal effect on certain pathogenic bacteria, while upon others it has no such effect. Buchner has demonstrated that this power belongs to the fluid part of the blood and not to the cellular elements. This power is said to be destroyed by heat, and lost when the blood has been kept for a considerable length of time, but is not affected by cold. It is also claimed that this power of the blood is very decided in its action, but limited to a given number of bacteria, and that when this number is exceeded that rapid development of the germ takes place in the blood serum, but becomes very much attenuated.

Hankins has isolated from the spleen and blood of rats a substance which has decided germicidal properties, and which he terms *globulin*. While keeping in view the alkaline theory, he attributes the power of rats' blood to destroy the anthrax bacillus largely to this globulin.

Kitasoto and others have published interesting results of their experiments in which they made a bouillon from the thymus gland of a calf. It was found that the tetanus bacillus when cultivated in this fluid did not form spores and had but little virulence. Small animals inoculated with small quantities

of these cultures were rendered immune. The blood serum of such animals was also found to be capable of producing immunity in other animals. The same was also found to be true with a few other pathogenic germs. This experiment led to the present anti-toxine treatment for diphtheria. To this gland may be attributed the certain degree of immunity enjoyed by certain young.

It is worthy of note that by far the majority of pathogenic bacteria are only capable of producing disease by the products, toxalbumins, of their multiplication within the system, or by the absorption of these products through the tissues, as in diphtheria and tetanus, and, that the immunitive substance in the blood or tissue must have the power of neutralizing these toxalbumins. In support of this theory Arloing has been able to produce symptomatic anthrax in naturally immune animals by adding certain chemicals to the cultures with which they were inoculated; thus seeming to indicate that the immunitive substance was destroyed by the chemical.

The subject of *acquired immunity* deserves our special attention; since the whole army of bacteriologists seems to be centred upon that one point for distinction, and, while as yet but little is known on the subject, marvelous revelations may be looked for in the comparatively near future.

It is a well established fact that a single attack of such diseases as small-pox, scarlet fever and yellow fever generally confer immunity from subsequent attacks. It is interesting to note, too, that this immunity is a duration of a life-time. In the above mentioned diseases the system becomes affected in general, although this is not necessary to produce perfect immunity; for we have similar results from such local affections as whooping-cough and mumps. In the first instance the immunitive substance is developed within the system, while in the second it must be absorbed from the infected area. It is also worthy of note that an attack of a certain infectious disease does not render the patient immune from other infectious diseases.

A number of theories have been advanced as to the nature

of this acquired immunity but none have been adopted as clear and definite. The severity of an attack of an infectious disease does not affect the degree of immunity produced; *e. g.*, a mild attack of small-pox or scarlet fever will render the patient as thoroughly immune as a severe attack. Indeed, a severe attack of the disease does not always render the patient absolutely immune; for cases are on record in which certain individuals have been known to suffer a second attack.

For a time it was the belief of Pasteur that in an attack of infectious disease the pathogenic bacteria in its multiplication in the body of a susceptible animal exhausted some substance necessary for its growth, and that this substance was never reproduced. In support of this theory an artificial culture media may be compared to the body. When bacteria have grown in a given quantity of culture media for a certain time it is observed that further development ceases, which may be due to one or both of two factors, viz., exhaustion of nutrition and excessive amount of toxalbumins.

We are hardly justified in supposing that the nutrition of the body has been used up by the bacteria, and would, therefore, have to conclude that the toxalbumins present in the system prevent any further development of the germ. At the same time it is hardly reasonable to suppose that these substances would not be excreted from the body in course of time. It would be just as unreasonable to suppose that a normal substance in the body which had been exhausted by the bacteria would not again be reproduced.

It will be seen, then, that if immunity is due to either of the above theories alone that it could only be temporary. It has been argued by some, especially Mitchnikoff, that immunity is largely, if not entirely due to the action of the white blood corpuscles which Mitchnikoff terms phagocytes. When the system becomes invaded with bacteria it is known that many of the germs are picked up and destroyed by these corpuscles. It is really a battle between the lucocytes and the bacteria in which many on each side are slain. If examined under the micro-

scope lucocytes will be seen to contain various numbers of bacteria in their interior. In some it would appear that the lucocytes were capable of digesting the bacteria and assimilating them as nutrition, while in others the opposite suggests itself, in view of which the question naturally arises: Do the bacteria flock to the lucocytes because they find in them a suitable culture media, or do the lucocytes make the attack?

Those who support the theory of phagocytosis attribute immunity to the power of the lucocytes to attack and destroy the germ. There is no doubt that they have some such power but I do not believe that we can attribute immunity to this one factor alone.

It is well known that the system may acquire a certain tolerance to certain drugs, such as opium, tobacco and arsenic. When the use of these is continued for some time, doses sufficiently large to destroy the life of an ordinary individual may be taken with impunity. If the system will acquire a tolerance to the action of such drugs it is reasonable to suppose that it may also acquire a tolerance to the action of bacteria, or their tox-albumins.

Until more is known on the subject we shall have to be content with the theory that immunity is due to three factors, viz., the action of lucocytes upon bacteria when introduced into the body; acquired tolerance of the cellular elements of the body; and the formation in the system of antitoxines which oppose further development of the pathogenic micro-organism.

AZOTURIA.

By F. S. Allen, D.V.S., Philadelphia, Pa.

Report of three cases before the Keystone Veterinary Medical Association, March 11, '96.

On January 1, 1887, I was called to see a black gelding, five years old, sixteen and one-half hands high, that was down, in a lumber yard, and unable to rise. On my arrival, I learned the horse had been removed to the owner's stable, some four miles away, in an ambulance, also that the animal had been

lying in the snow and slush for over four hours previous to his removal.

On arrival at the stable, I at once removed the urine, which was of a very dark-brown color (nearly black). The animal was then placed on fresh dry straw. Blankets were piled upon him, to protect the skin and kidneys, also to produce diaphoresis. A ball was then given, containing calomel and Barbadoes aloes. One dose of chloral hydrate was then given, to quiet the animal. This was followed up with the tr. opium, in one ounce doses (as often as necessary), advice being given, however, to use only what was absolutely necessary to keep the animal quiet, every effort being made to keep the animal quiet without medicine. Two attendants remained with the animal day and night until he regained his feet.

The urine was removed three times during the first twenty-four hours, and twice the second day. Two pints of raw linseed oil were given during the first day to increase the action of the ball, which operated slightly on the third day. The animal regained his feet on this, the third day, but there was a loss of power in the near hind leg, which remained with him for many months, even after he resumed work. Liniments with friction were resorted to for a long time over the stifle, gluteal muscles and lumbar region. A blister was applied over the stifle region, with little benefit. The animal was put to work, and there was a marked dropping on the near hind leg that continued for at least six months, and the animal was never quite as well as before sick. Friction was applied for a long time in the region of the stifle after the animal resumed work, and did as much good, apparently, as anything.

Case No. 2.—Was a gray gelding, eight years old and sixteen and one-half hands high. This horse had been at work all the morning, January 20, 1896. In the afternoon, on leading him from the stable to go to work, the teamster noticed he was lame. At this time I drove up to the office, just as they were about to send or telephone for me. I saw I had a case of Azoturia, and on removing the urine, found it thick and of a very dark color

(chocolate). I at once gave a ball of aloes, containing one drachm of calomel and six drachms of Barbadoes aloes.

I then put up a mixture of

℞. Ext. Buchu fl.
" Juniperis Becca fl.
Act. Potass. *āā* ℥ iv.
M. Aquæ q. s. ℥ xii.

and gave one ounce every hour for twenty-four hours, then, on the second day, one ounce every three hours. I had two thick blankets put on him. All this time he remained standing, but I could see he was standing upon three legs, and gradually growing worse, soon going down. The off hind leg was the one most affected. I encouraged him to remain down, and made every effort to keep him quiet as before. I removed his urine in the evening, and gave him one drachm of calomel. Later on he was given one pint of raw linseed oil. He remained down nearly all night, occasionally, towards morning, getting partly up, and turning, but quiet. In the morning he was found up, standing quietly, also purging freely. He was standing mostly upon three legs. Liniments and friction were used for two days. He went to work on the tenth day, and might have worked even earlier.

Case No. 3.—On February 17, 1896, I was called to see this same gray gelding (Case No. 2) again. He was in the upper part of the city, some five miles away from home. He reached his destination with a load of lumber, but when about to return home, he became lame, and being unable to return, was taken to a near-by stable, to await the coming of the ambulance.

It was some four hours before he arrived at the stable for treatment. I was not on hand, but had left instructions with the foreman to see that he received one-half pound of bi-carbonate of soda, in a pint of water, which he did. On my arrival I removed his urine, which was a very dark chocolate color and thick. He was placed in a large roomy stall, containing peat moss to a depth of about five inches, which was fresh and dry, free from lumps, making a nice soft bed. He was covered over

with blankets and three large sails, which kept him very warm. I then administered a ball containing aloes and calomel, as before. The second half pound of bicarbonate of soda was then administered (one hour after the first dose). In six hours I gave the third half pound of the bicarbonate of soda. I followed this up in six hours with the fourth half pound, making in all, two pounds in thirteen hours. The next day he was given four ounces, morning, noon and night.

In connection with this treatment, I gave every hour, the same mixture, of ext. buchu, ext. juniper, and act. potass, etc., every hour, for twenty-four hours, and then once in three hours. The urine was removed three times in twenty hours. When removed in the evening, it was still thick and dark in color. This horse at no time during the afternoon or evening was able to put any weight on his hind extremities. He was turned several times during the day and night. The attendants were instructed to do everything in their power, to keep him quiet and prevent all attempts to rise.

In the morning I telephoned over to learn his condition and was informed he had made attempts to rise, and that they had allowed him to do so. Also that they had placed him in the slings, left ready for him, if needed. The slings were not needed, but were left on one day. In placing him in the slings, it was necessary to lead or walk him a distance of twenty feet or more.

It was just nineteen hours from the time he was placed under treatment, that he was able to stand alone. I used the bicarbonate of soda, fearing that with my old form of treatment, the patient would die, it being the second attack, and very severe. I had learned of the bicarbonate of soda treatment, only the day previous, through the kindness of Dr. Leonard Pearson, who kindly loaned me an article to read, that he had just translated. (Published in the Feb. No. of the *Vet. Mag.*)

Cases No. 1, No. 2 and No. 3 had all been standing in for two or three days.

Cases No. 2 and No. 3 had been fed on the best of oats. Weight 44 pounds per bushel.

The feed was said to have been cut down to half rations.

(?) At the time of their coming down, in all three cases, there was a sharp change in the weather. The weather was cloudy, raw, sharp and damp. In Case No. 3, there had been a change in the temperature of over forty degrees, in from twenty-six to thirty-six hours. They were all free working horses, such as were likely to overdo, if allowed to. I can but believe that the feed and weather are the two important factors together with a lack of proper and much needed exercise.

THE PLEASURE OF BEING A VETERINARIAN.

By J. C. Michener, V.S., Colmar, Pa.

A Paper read before the Pennsylvania State Veterinary Medical Association, March 4.

Occupation helps form character. Different callings bring into play and develop special faculties.

As the business, so the man. A person may engage in a monotonous routine business, like a special part in a great factory, to which he becomes so accustomed as to act in an automatical manner, and become, as it were, a part of the machinery, exercising scarcely more thought than the mechanism that his hands direct.

It is one of the charms and advantages of our profession, that the practitioner must think and act for himself.

It is pre-eminently an intellectual occupation, and one's success is measured by his powers of observation and ability to determine the requirements of the manifold conditions in which he finds his patients.

The practitioner soon gains a keen realization of the necessity of being wide awake to take in the situation and anticipate the conditions that will arise and be ready to meet them, as the game player. It is when he becomes equally fascinated and when every failure makes him more determined that he is on the road to success and honor, instead of the disaster and ruin which overtakes the gambler.

As practitioners we know the difficulties encountered, the

great care and close observation required to make correct diagnosis and prognosis, control our patients and satisfy our patrons in a business point of view.

In real abilities required, we lose nothing when put in comparison with the noblest of all professions.

Our patients suffer from equally numerous and intricate diseases, require as skillful surgery, but *fortunately* they are mute. We *must* learn the symptoms of diseases. The language of every attitude and movement.

We do not *ask* to have a pain located and described, but make it out for ourselves. Put the human and veterinary practitioner each in the field of the other and we would be at least equally successful.

Prognosis is one of our essential acquirements, we must tell at the onset, the duration and result of the disease, the trouble and expense it will involve, the outcome of malformations, predispositions, freaks of nature or odd behavior in order to give our clients sound advice from a business point of view.

This required knowledge is not of the horse alone, but of all living creatures over which man has control.

Who can mention a business requiring a more diversified knowledge, more close observation and better judgment?

Skill is always appreciated. We honor the person who can do something beyond the capabilities of ordinary mortals, hence our profession opens a field of rare usefulness, honor and moderate profits, all of which lends rational abiding pleasure to our calling.

As you practitioners well know, it is not all fair sailing, the difficulties are great and mistakes are censured unmercifully.

Fortunate that it is so. It teaches us caution, develops our manhood, makes us self-reliant and strong.

Our facilities for intercourse with our fellow men, the gratitude and friendship accorded us, are among the substantial pleasures that fall to our lot.

I imagine the country practitioner is in better touch and sympathy with his patrons, than his city brother.

The farmer cares for his own stock. He receives the Vet. as his guest, they become interested in each other, and a lasting friendship results.

It is very pleasant and exhilarating to sit behind a good roadster and glide along amid the beauties of Nature, and receive the friendly greeting of those one meets on the road.

It is a great source of pride and pleasure that the veterinary art is rapidly gaining recognition and prominence among the professions and that the time is growing short in which unworthy persons shall find employment because there are not enough qualified men to fill the public want.

We should all take pride in our business and do our utmost to have a good class of men, thoroughly trained, in whose hands to place its keeping.

SHOEING.

By E. L. Morgenroth, M.D.C., Bottonville, Wis.

A Paper read before the Wisconsin Association of Veterinary Graduates.

I have chosen this subject for the reason that there is so little said and published in the veterinary journals of the day about this very important subject. The following is intended more to bring out an expression from the profession than with any thought of contributing anything worthy of note.

While writing on this subject, it is necessary now and then to touch upon the general structure and morbid condition of the foot. "As an organ of support, the foot has an essential duty, since it is through it that the entire machine is put into connection with the ground, while the point at which it is placed is in fact the support of the limbs, on which all the locomotive agencies work; as an organ of elasticity, its duty is no less important when it is considered what enormous forces the result of weight of the animal, combined with its powerful muscular contractions, all bearing on that apparatus, and that it is the means of neutralizing the concussions, which without it would be fatal to the entire mechanism and particularly the limbs. As an or-

gan of touch the foot of the horse is, in spite of its horny envelope, a very delicate organ; this is proven by the great number of nerves which anatomy shows to enter into its organization, the knowledge which it possesses of the condition of the ground over which it moves, and on which it preserves its equilibrium at different paces, whatever may be the form of the ground.

Not ten per cent. of the horses shod a few years by the system in general use, have sound, healthy feet; contractions and its consequences, corns, quarter cracks, thickening of the lateral cartilages, inflammation and ulceration of the navicular bone and coffin joint, with other changes of structure that make the horse liable to soreness or incurable lameness; while horses having sound, healthy feet are the exception.

This could be prevented or cured by good shoeing and proper treatment. However, these faults are not wholly to be accounted to the shoer. The man who scoops out and rasps the foot persistently to make it look artistic, puts the most iron into the shoe, and nails it on so firmly that it will remain so indefinitely, and works the cheapest, usually gives the best satisfaction, the owner believing he is getting the most for his money, the health of the foot and comfort of the animal being a matter of secondary consideration.

The foot is, next to the eye, the most beautiful and perfect in details of its structure, it is in every particular the most perfectly adapted of any part of the body for giving the greatest possible strength and elasticity, and if not interfered with is capable of sustaining all the strain and wear to which it can be reasonably subjected. But when exposed to causes which bring about disease and change of structure, there are also involved to a greater or lesser degree the health and mobility of the entire limb. This being true, we want to learn, if we can, the causes of these derangements, and how to prevent as well as overcome them. Horses shod with the most care according to the foregoing principles, the bottom of the foot and frog abundantly cut away and scooped out, the whole made artistic by rasping down the outer surface of the hoof, have the worse condition of feet:

while those shod most carelessly or quickly, barely levelling the wall, without regard to sole or frog, and nailing on the shoe with perhaps a few hurried rakes of the rasp under the clinches, maintain the best condition of health.

The object of shoeing is to prevent excessive wear, give power, and prevent slipping, which necessitates the following conditions:

The preparation of the foot, the weight, form and fitting of the shoe and nailing it to the foot.

1st. In preparing the foot for the shoe, the aim should be to cut away so much of the wall as would be a surplus of growth, or so much only as would bring it back to its natural form and adjustment; if it is desired to be particular, the shoer should see how the feet are carried in a sharp trot, whether too high or too low, or whether he travels too close, endangering interfering or cutting. The foot can then be taken up, when a look from the heel forward will enable an experienced shoer to determine how much and what part is to be cut away, to level it to the proper proportions, and the faults if any can be modified or corrected.

2d. The shoe should be formed so that when on, the adjustment of the foot, or its power to obtain hold or grasp upon the ground, be as nearly as possible as it was before being shod.

3d. It should be nailed on firmly, yet so as to break or weaken the wall of the hoof as little as possible, and not interfere with the freedom of the quarters, or enlargement of the foot as it grows. The shoe when on must exert no undue pressure upon any part. In the state of nature, the bones of the foot are so nicely adjusted and balanced by the ligaments and tendons of the limb, that there is no unequal strain brought upon any joint, but each assists in supporting the others, but if the heels are raised too high there will be an increased strain brought upon the anterior ligaments and tendons, and if the toe is too high, there will be an increased strain on the back tendons; in like manner raising or lowering the inner or outer quarter, would produce a lateral strain upon the joints and ligaments, which

must ultimately cause serious injury and cause the foot to grow out of line.

If the horse travels too high and it is objectionable the shoes should be light, if too low they may be increased in weight; if liable to interfere or strike set the shoes close under the wall at the point of striking; the offending part should be shortened or straightened a little, and that there be no nails driven there, the clinches of which would soon rise and cause cutting. The edge of the shoe should be levelled and filed smooth. Lightness of the shoes is always desirable on the hind feet, and if the season of the year permits, tips will be found very effective in prevention of interfering. It can also be prevented by making outside web of shoe heavier than the inside, or by using an ordinary toe weight on the outside of the foot.

Clicking or Overreaching.—This may be due either to a faulty conformation, to weakness or to disease. To remedy this defect we must discover its cause. If it is due to defective form we may so adjust the hoofs and apply the shoes that the feet shall be placed upon the ground in such relation to the body as to modify in some measure the fault of the form. In some cases, weights or heavy shoes on the forward feet and light shoes on the hind feet will prevent; while in others, weights upon the outside of the hind shoes overcome the difficulty.

Stumbling.—This is usually associated with some diseased condition of the foot. In the prevention of this disagreeable and dangerous habit, particular attention must be given to preparing the foot; see that it is of equal depth on each side of the toe. This can be best ascertained by standing in front of the horse and comparing the two sides. In fitting the shoe, bend up the toe, giving it the shape of one well worn. If calks must be used, weld toe calk well back to inner margin of the web, making it low and level anteriorly.

Shoeing for Contraction.—Contraction may be divided into three different classes: 1st. A general compression or drawing in of the wall upon the vascular structure. 2d. When but one or both quarters are drawn in. 3d. When the heels are curled

in or pushed forward under the foot. Therefore the prevention and cure of contraction must depend upon removing excess of horn, frog pressure and freedom of the quarters, or if necessary opening them mechanically as desired and upon moisture. If the feet could have conditions that would afford natural moisture, and the shoes made so thin that the frog and the sole could have reasonable contact with the ground, the quarters so free that they could expand with the growth of the foot, there would be little if any contraction. We see that in all cases where there is reasonable frog pressure, it becomes larger, firmer and more elastic, while raising the frog from the ground or contact causes it to become small and hard, the quarters to draw in and the whole foot to diminish more or less in size; if there is but little contraction, with fairly good condition of the feet, all that is necessary to do is to level down the foot, remove any surplus of horn from the sole and put on tips and keep the feet soft by moisture. But for a bad condition of contraction more direct and positive treatment will be necessary. If the frog is small and the sole forced upward, the whole internal structure locked and tied, as it were, by severe compression of the wall, three conditions are necessary:

1. Complete elasticity of the quarters and sole.
2. To open the quarters so as to relieve pressure and allow the sole to settle back to its natural position.
3. Gradual frog pressure.

The first important step is to thoroughly soften the feet. This being accomplished, an ordinary shoe or tip properly adjusted will soon remedy the defect. In shoeing for quarter cracks, give entire freedom to the affected quarter by cutting down between the bar and frog and remove all loose parts; use a bar shoe and see that there is no pressure on the affected quarter, then blister the crown or apply some stimulating liniment or hoof ointment.

For corns, remove the horn or part of the shoe so that there will be no pressure on the affected parts. In severe cases use a bar shoe or tip. With sore and tender feet, great care should

be taken in taking off and nailing shoes on such feet not to wrench or hammer the foot heavily. In nailing the strokes should be light and the clinches barely sufficient. Anything in the way of hard, tight nailing should be avoided. In tender feet or weak heels we usually find a strong frog. In such cases a bar-shoe properly adjusted would be all that is necessary. There are also several kinds of pads or foot cushions which can be used with good results.

Foundered Horses.—If the mobility of the foot is destroyed as a result of chronic founder, mobility must be aided by rounding the entire shoe or toe. If the foot is entirely stiff, the shoe must be so formed that it will roll upon the ground, which can be easily done by leaving the inner edge of each side of the shoe wide, and turning it down in a half circle. If the sole is broken down, or the wall separated at the toe, weight will be thrown more upon the heels, and for such cases the shoe must be so fitted as to extend well back under the heels. If calks must be used, set toe calk well back to inner margin of web and level anteriorly.

COLLEGE COMMENCEMENTS.

AMERICAN VETERINARY COLLEGE.

The twenty-first annual commencement exercises of the American Veterinary College took place on the evening of Wednesday, March 25th, at Chickering Hall, 18th Street and Fifth Avenue, New York City, and the hall was well filled with the friends of the graduates and of the college. Delightful music was supplied by the Seventh Regiment Band, and the Rev. Robert S. McArthur, D.D., opened the exercises with prayer. Prof. W. J. Coates, Dean pro-tem. of the Faculty, read his report for the year, after which Faneuil D. Weisse, M.D., President of the Board of Trustees, conferred the diploma of the college (which confers the degree of Doctor of Veterinary Surgery—D. V. S.) upon the following gentlemen: Clarence Linwood Adams, Danielson, Conn.; Alfred Frederick Bollinger, Brooklyn, N. Y.; John Sutherland Buckley, Mount Washington,

Md.; Samuel Sutherland Buckley, B. Sc., Mount Washington, Md.; George Cohen, New York, N. Y.; Cyrus Harvey DuBois, New Paltz, N. Y.; John Daly Gogerty,New York, N. Y.; Robert Walter Grutzman, B. Sc., Strasburg, Germany; Leland Delano Ives, Wallingford, Conn.; Edward Nathaniel Leavy, New York, N. Y.; August Frederick Lange, San Antonio, Tex.; Thomas Jewett Lee, East Granby, Conn.; Michael Joseph Murphy, Jr., New York, N. Y.; George W. Mead, Jr., Brooklyn, N. Y.; Harrison Price Monk, Brooklyn, N. Y.; Percival King Nichols, Port Richmond, N. Y.; Herbert William Pratt, Rome, N. Y.; Henry Wilson Peter, Saegersville, Pa.; John Passmore Rauch, Memphis, Tenn.; John Goddard Richardson, Portland, Me.; William R. Rosekrans, New York, N. Y.; Christian Rothaug, Brooklyn, N. Y.; Charles Henry Tilton, Jr., Ashland, Mass.; Robert Clarkson Vail, Rahway, N. J.; Charles Robert Witte, New Britain, Conn.; Frederick Adolph Zucker, New York, N. Y.

After the distribution of the diplomas Prof. L. H. Friedburg, Ph.D., of the Faculty, in well-chosen terms, awarded a number of prizes for special excellence in various branches and departments, John S. Buckley, D. V. S., receiving the gold medal of the Board of Trustees, for the best general examination in all the branches; his brother, Samuel S. Buckley, B. Sc., D. V. S., taking the prize offered by the Alumni Association for the second best general examination; the gold medal of the Faculty to the student passing the best practical examination before a committee of veterinarians practicing in New York and Brooklyn was conferred upon Frederick A. Zucker, D. V. S.; Herbert W. Pratt, D. V. S., receiving the prize offered by the President of the College Medical Association for the best written and defended paper upon a medical subject read before a meeting of the association. The prize of a full year's scholarship, value $100, for the best general examination by a student of the second year, was won by Mr. George F. Westcott, while the first year half scholarship, value $50, fell to the fortune of Mr. Rogers F. Twombly. The anatomy prize for first-year students was awarded to Mr. J. A. Pistor.

Edward Nathaniel Leavy, D. V. S., of the graduating class, then delivered a most interesting valedictory address, which was much enjoyed. The address to the graduates was delivered by Prof. J. W. Dowling, M. D., of the Flower Hospital Medical College, and was one of the happiest in the history of the American's commencements.

ONTARIO VETERINARY COLLEGE.

The closing exercises of this institution were held on Saturday, March 28, when the following list of graduates received their diplomas: William Agnew, Belgrave, Ont.; F. A. Armstrong, Fergus, Ont.; T. H. Agnew, Evanston, Ill.; S. Beattie, Waterloo, Wis.; R. J. Bestul, Grafton, N. Dakota; J. F. J. Black, Dublin, Ireland; P. D. Bray, Cannington Manor, Assa., N. W. T.; A. Brechter, Beaver Dam, Wis.; W. G. Bunnell, Heywood, Manchester, Eng.; B. A. Brown, Highbury, London, Eng.; F. Braund, Jr., McGregor, Man.; P. Cain, New Perth, P. E. I.; M. Chrisman, Frewsburg, N. Y.; J. L. Clark, Stratford, Ont.; K. Clark, Cooperstown, N. Y.; E. W. Culley, Avon, N. Y.; H. Caldwell, Louisville, Ky.; J. Cramer, Elwood, Ind.; R. H. Craig, Bushton, Ill.; J. A. Campbell, Teeswater, Ont.; E. Dingman, Maplewood, Ont.; R. A. Dennis, Adams, N. Y.; J. R. Donahue, St. Thomas, Ont.; C. H. Drake, New Haven, Conn.; F. J. DeLand, Clinton, N. Y.; A. F. Elliott, Grandin, N. Dakota; H. T. Ferguson, Lake Geneva, Wis.; J. D. Finch, Ramseys, N. J.; A. B. Gay, Randolph, Vermont; B. F. George, Overton, Ohio; J. F. Gillespie, Ridge Farm, Ill.; W. J. Grady, Quincy, N. Dakota; N. O. Gilbert, Brooklyn, N. Y.; A. Gibson, Berlin, Ont.; L. Hay, Warsaw, Poland; C. Haas, St. George, Ont.; W. W. Hall, Leeds, P. Q.; A. B. Hecker, Albany, N. Y.; J. B. Hill, Canandaigua, N. Y.; R. F. Hoadley, Yorkville, Ill.; W. E. Howe, Delphi, N. Y.; W. N. J. Hurt, Matlock, Bath, England; A. P. Husband, Nassagaweya, Ont.; T. M. Hadwen, Wheatland, N. Dak.; G. R. Inglis, Campbellville, Ont.; J. J. Irwin, Sheffordvale, P. Q.; R. E. Jackson, Tyler Hill, Pa.; P. H. Johnson, Racine, Wis.; J. E. Johnston, Texas, Ohio; E. H. Judkins, Ohioville, N. Y.; C. P. Keith, Bridgewater, Mass.; T. L. Kelly, Lakeside, Ohio; J. C. Kingan, Pittsburg, Pa.; R. Kjermer, Rochester, Minn.; W. H. Kenwell, Cuba, N. Y.; J. Lawrason, St. George, Ont.; H. L. Leberman, Meadville, Pa.; W. S. Longacre, Mantz, Pa.; J. T. Leary, Ellicottville, N. Y.; N. G. LeGear, Imlay City, Mich.; J. D. Macdonald, Jr., London, Eng.; R. W. McDonald, Jackson, Mich.; A. J. McKay, Tavistock, Ont.; C. H. McGillicuddy, Lewiston, Maine; D. Maher, Godfrey, Ill.; H. E. Marshall, Ottawa, Ont.; G. R. C. Merriam, Negril, Jamaica, W. Indies; S. Moore, Lowell, Mass.; L. Mulligan, Ottawa, Ont.; P. McNeal, Shickshinny, Pa.; W. N. Neil, Tower Hill, Ill.; B. E. Nevel, Huntersville, Pa.; L. A. Nutting, Syracuse, N. Y.; J. Oliver, Jr., Columbus, Miss.; J. D. Paxton, St. George, Ont.;

H. C. Peters, Greenleaf, Minn.; J. O. Reed, Danville, Pa.; A. W. Reilly, Grand Valley, Ont.; L. T. Richards, Grandville, Ohio; J. L. Riddell, Denver, Col.; P. A. Robinson, Emerson, Man.; L. D. Ryan, Emporia, Kan.; H. R. Ryder, Delphi, N. Y.; F. G. Scammel, Lafayette, N. Y.; C. A. Seaton, Bloomington, Ont.; S. L. Shaw, Summer Hill, Ill.; G. F. Sheppard, Edinburgh, N. Dak.; T. V. Simpson, Yorkton, N. W. T.; J. J. Sparrow, Victoria, B. C.; R. J. Stanclift, Derby, N. Y.; W. C. Stephens, Newmarket, Ont.; D. A. Stewart, Ivan, Ont.; J. H. Summers, Oswego, N. Y.; Z. Strong, Carleton Place, Ont.; J. A. Stevenson, Morden, Man.; F. C. Simpson, Bridlington, Quay, England; J. W. Tooley, Lansing, Ont.; J. Turnbull, Lowville, Ont.; J. H. Vrooman, Vroomanton, Ont.; R. E. Willis, Brampton, Ont.; A. R. Walsh, Buffalo, N. Y.; W. Walker, Kingston, Ont.; M. A. Whimster, Portage la Prairie, Man.; E. J. Will, Moore's Store, Virginia; A. E. Williamson, Queenstown, Ireland; D. B. Wilson, London, Ont.; G. E. Wilson, Carleton Place, Ont.; F. L. Wingate, Kingston, Jamaica, W. I.; R. W. Wilkinson, Drumbo, Ont.; A. C. Woods, Council Bluffs, Iowa; A. G. Young, Bristol, P. Q.

NEW YORK COLLEGE OF VETERINARY SURGEONS.

Departing from the established custom of having public commencement exercises, this college had its services in the hall of the college, on April 1st, when the Oath of Hippocrates was administered by the President of the College, and the prizes and diplomas were awarded, the following gentlemen receiving the degree of V. S.:

Louis Abel, Brooklyn, N. Y.; Joseph Cohen, New York; John Hambleton Dedrick, Schenectady, N. Y.; George Clarke De Witt, Oak Hill, N. Y.; James Thomas Glennon, Newark, N. J.; William Patrick Hanifin, New York; George Ferdinand Horpel, Jersey City, N. J.; Milton Daniel Harper, Philadelphia, Pa.; John Francis Harrison, Stamford, Conn.; George Edgar Harder, Pittsfield, Mass.; Augustus F. Johnson, New York; Samuel Henry Johnson, Philadelphia, Pa.; J. Homer Luff, Paterson, N. J.; Eckford S. C. Littlefield, Brooklyn, N. Y.; James Francis Laden, New Haven, Conn.; J. Brown MacNeil, Albany, N. Y.; Charles Emerson May, Avon, Mass.; Daniel Gerald O'Connell, Brooklyn, N. Y.; Nathan Peyser, New York; Thomas Michael Quinn, Astoria, L. I.; William Riley Rhinehart, Inwood, L. I.; Robert Guernsey Rice, Rome, Pa.; Joseph Schnurmacher, New York; Charles Rinear Scattergood, Brooklyn, N.

Y.; Major Schofield, Brooklyn, N. Y.; John Tjaden, New York; Charles Robert Utz, Freeport, L. I.; Max Wendel, Middle Village, L. I.; Walter Herbert Yingst, Harrisburg, Pa.

The exercises at the college were followed by a dinner of the faculty and graduating class at the Hotel Marlborough, about sixty sitting down to the banquet table, when the following stated toasts were responded to:

The New York College of Veterinary Surgeons, H. M. Biggs, M. D., President of Trustees; The Trustees, C. C. Savage; Practice, H. D. Gill, V. S., Dean of Faculty; Good-fellowship, M. Schofield; The Alumni, J. H. Ferster, V. S., President of Alumni Association; The Future, C. R. Scattergood; The State and Veterinary Science, R. W. Hickman, Ph. G., V. M. D.; The Student, T. M. Quinn; Post-Graduate Study, W. Lellman, D. V. M. Toast Master, J. H. Huddleston, M. D.

KANSAS CITY VETERINARY COLLEGE.

The fifth annual commencement exercises of this college were held in the Masonic Building, March 19. The address to the students was delivered by Prof. Wolf, and President Wattles presented the diploma of the college (conferring the degree of D. V. S.) upon the following gentlemen: Frank H. Ames, Waverly, Mo.; Albert A. Immel, Springfield, Mo.; William A. Cock, Clinton, Mo.; Charles F. Hickman, Galena, Kan.; Edward L. McCrea, Lamar, Mo.; Elwood J. Netherton, Gallatin, Mo.; Samuel Sheldon, Turney, Mo.; William N. Hobbs, Kensington, Kan.; James C. Keeley, Waterford, Ireland.

MCKILLIP VETERINARY COLLEGE.

As this college had no senior class, the exercises consisted of addresses to the students upon the principles of the profession, interspersed with good advce to the embrional veterinarians. The following students received certificates for admission to the graduating class of 1897: H. S. Caldwell, O. R. Dubia, J. B. Boomer, H. O. Davis, George Danderan, of Illinois; W. S. Powell, J. H. Crawford, of Wisconsin; W. P. Ellenberger, E. Merillat, of Ohio; J. G. Tyner, of Indiana; George R. White, of Tennessee; C. N. Ferrier, E. H. Brown, of North Dakota.

INDIANA VETERINARY COLLEGE.

The exercises were held in the College building, 24 South East Street, Indianapolis, March 13, when addresses were delivered by President Armstrong and W. S. Tomlin, M. D. Re-

marks were indulged in by members of the faculty, and responded to by F. A. Muller, Ph. G., of the graduating class. The degree of the college was conferred upon the following gentlemen: F. A. Muller, Ph. G., Indianapolis, Ind.; H. E. Smock, Indianapolis, Ind.; Charles Regar, Silver Lake, Ind.; W. R. Ramsey, and F. Osborn. Charles Regar won the first prize on surgery, lameness, and shoeing, which consisted of a surgery and shoeing case.

CHICAGO VETERINARY COLLEGE.

On March 24th the thirteenth annual commencement exercises of this college were held in the College Auditorium. On the evening previous a banquet was tendered by the trustees to the faculty and graduating class at the Sherman House and a most enjoyable evening was spent. The week preceding the date of the graduating exercises was taken up by the final examinations, the results of which were that twenty-eight students passed. Of this number eight passed in honors, Dr. E. J. Davidson receiving the gold medal of the college for the highest general average. Dr. Davidson also received the prize for the highest standing in theory and practice. Dr. E. Jentzsch won the prize for the best standing in anatomy, and Dr. Walter Bolton the prize for the best examination in chemistry.

The Chairman, Dr. A. H. Baker, commenced the proceedings by reviewing at length the progress of the institution since its organization in 1883, and in the course of his address stated that this was a most fitting time to announce that henceforth the college course would be extended from two to three sessions, covering three years instead of two as heretofore. He then conferred on each member the degree of Doctor of Comparative Medicine and presented the diplomas. The class valedictarian, Dr. A. C. Worms, then delivered his address and was followed by Dr. A. S. Alexander on behalf of the faculty. Dr. E. R. Flack delivered the class prophecy, after which Dr. Schwarzkopf addressed the faculty and graduates, and in doing so he highly complimented them on the change to a three session course.

The following is the list of graduates and their present location: W. Bolton, Waukesha, Wis.; R. L. Brown, Janesville, Wis.; C. E. Brownback, Pleasant Plains, Ill.; O. F. Butterfield, Leithton, Ill.; E. J. Davidson, Grand Forks, N. D.; Edwin Dickinson, Fayette, Ia.; G. K. Dodson, Los Angeles, Cal.; F. A. Dolton, Dolton, Ill.; Henry F. Eckert, Reeseville, Wis.; E. R. Flack, Milwaukee, Wis.; J. W. Foster, LaFayette, Ind.;

D. J. Halloran, Hortonville, Wis.; E. M. Herrin, Highland, Ill.; J. G. Hope, Chicago, Ill.; E. Jentzsch, Chicago, Ill.; E. A. Johnson, Platteville, Wis.; M. H. Kyle, Highland, Ill.; N. W. Kyle, Colfax, Ill.; J. A. McGarry, Milwaukee, Wis.; W. J. Malone, Springdale, Wis.; F. McCoy, Lake Odessa, Mich.; C. G. Nelson, Chicago, Ill.; J. H. Pear, Chicago, Ill.; F. R. Pierce, Dows, Ia.; F. P. Scott, Petersburg, Ill.; Wm. Voss Kiel, Wis.; C. H. Whitwell, Dubuque, Ia.; A. C. Worms, Chicago, Ill.

PEROXIDE OF HYDROGEN.

By Warren Brown, M.D., Tacoma, Wash.

Read before the Washington State Medical Society, May, 1895.

This is usually made by the decomposition of hydrated peroxide of barium by sulphuric acid. It is employed in the arts for bleaching. The usual commercial article yields about ten volumes of oxygen.

Dr. Benjamin Ward Richardson, the famous London physician, who in 1893 received knighthood from Queen Victoria, first experimented with peroxide of hydrogen in 1857. It was regarded then as a curiosity, and was soon forgotten. Thirty years later, Dr. Squibb, of Brooklyn, brought it prominently before the profession, and since that time it has been used more and more each year, until its consumption has reached enormous proportions.

In order to preserve hydrogen peroxide it must be slightly acid; on this account, a disagreeable irritation and smarting may be caused by its use on mucous membranes. This can be avoided by mixing it fresh at the time it is to be used with equal parts of lime water, or spraying with lime water first.

It effervesces not only with pus, but with blood, serum, mucous and cerumen. It is one of our best antiseptics, and it is of the greatest value in removing septic clots and enveloping fluids before making application of other drugs.

As a bleaching agent, in skin practice, it is constantly used in removing pigmentary stains, and may always be tried before resorting to bichloride of mercury in the treatment of freckles and chloasma. Discolorations of the skin and nails caused by the aniline dyes, chrysarobin, pyrogallol, sulphur, and permanganate of potash will yield to this excellent bleaching agent. Nearly all of the patent hair bleaches on the market contain peroxide of hydrogen.

Gonorrhœa may often be aborted by using a full strength

hydrogen dioxide injection immediately on the very first appearance of discharge. The meatus should be closed and the solution retained for five minutes. The injection should be used four to six times in twenty-four hours. This drug is only of value in the incipient stage.

Cystitis, where pus is voided with the urine, often yields rapidly to injections of a solution containing two ounces to the pint.

Otitis media is treated by hydrogen dioxide solutions in various strengths from 6 per cent. upward. It is an almost indispensable agent in these cases.

Eye diseases, where there is a purulent external inflammation, are constantly being benefited by this agent. The Wills Eye Hospital, Philadelphia, uses a 50 per cent. strength of the so-called 15 volume solution. Blepharitis marginalis is quickly cured by touching the edges of the lids once or twice daily with a strong solution, taking care to avoid getting it into the eye.

Ulcers of all kinds improve rapidly under its use, granulations are stimulated and surfaces freshened. For treating and cleansing venereal sores, as chancroids, etc., it is of great service.

Empyema, especially where there is from the first a stinking, sanious exudation following incision, is very satisfactorily treated by washing out the cavity with a solution from one-half to full strength.

Dr. Noble, of Philadelphia, commends this agent for cleansing the hands preparatory to abdominal operations when the skin about the nails has become horny and rough from frequent contact with antiseptic solutions.

In appendicitis, the abscess cavity is cleansed with this solution by many operators, in preference to any other antiseptic. Robert T. Morris, of New York, has laid special stress on the value of the peroxide in these cases.

In follicular tonsilitis, the use of a spray, diluted just enough to prevent the smarting sensation, and alternating with this one of the alkaline antiseptic sprays, or gargles, is a very satisfactory procedure.

Diphtheria and all naso-pharyngeal inflammations where there is a pseudo-membranous and septic condition, have been treated very widely by means of this agent. I like the plan of Jennings in Detroit, who uses an irrigation of an aqueous solution of one-eighth each of hydrogen dioxide and listerine. He throws the solution into the pharynx with an all-soft rubber syringe every one, two or three hours. The plan is an admir-

able one for treating children, and the combination is pleasant and effective.

Atrophic rhinitis is benefited remarkably by the use of a 40 per cent. spray. It should be used a few minutes before the employment of the usual alkaline, stimulating spray, and the powder insufflations. In this way the scabs are loosened, muco-purulent secretions are dissolved, and a stinking breath is converted into one that is pure and sweet.

In acute cases of eczema of the leg, we find this agent of the utmost value. The tissues are inflamed, hot, swollen and oozing, the itching is almost unendurable, the odor is offensive. To secure the best results the limb is elevated, and a diluted solution of the peroxide is applied frequently, with cheese-cloth, gauze or an atomizer. In two or three days a marked change for the better will be apparent, the pruritus is allayed, the purulent exudation is checked, and all inflammatory symptoms are subsiding. At this stage we begin the use of a soothing ointment, such as the boracic acid or zinc oxide, using lime liniment to wash the parts instead of water. Under this treatment, combined with rest, we will see our patient rapidly cured.

Eczema of the anus will rapidly improve if the fissures are touched twice a day with this solution, then dried gently with cotton, and a glycerite of lead application made. In nearly every form of acute eczema in the first and second stages the peroxide will give us the keenest satisfaction. The regular solution is diluted with two or more parts of water. Hydrogen peroxide is an excellent anti-pruritic and for this purpose it is widely used.

The hæmostatic value of this drug as pointed out by Dr. Emerson Brewer of New York, I can endorse. In operations on the nose and throat I have upon two occasions been enabled to check a persistent hæmorrhage, when Monsel's solution and plugging had failed. At present I am in the habit of applying the full strength hydrogen dioxide after every operation on these parts. It is of special value after sawing out a deviated septum.

For flushing out a mammary abscess cavity this agent is invaluable.

Applied to the cervix uteri, adherent mucous is removed and our medications can be applied.

Where it is inadvisable or impossible to make a complete opening of a fissure or abscess, irrigation with the peroxide will be found superior to all other antiseptics.

We have in peroxide of hydrogen a prompt, safe and efficient germicide. By its oxidizing power it rapidly decomposes pus, diphtheritic membranes, and other morbid putrifying material. It is a thorough deodorizer, and as a cleansing agent for foul wounds, abscesses, etc., it has no equal.

Of the different preparations of peroxide, Marchand's has been most uniformly satisfactory.

BIBLIOGRAPHY.—Piffard, Jennings, J. Lewis Smith, Noble, Morris and others, as well as the current medical journals.

Since writing the foregoing paper my attention has been called to hydrozone, a stronger solution of peroxide of hydrogen, which for some months I have been using with much satisfaction.

BIBLIOGRAPHY.

PRÉCIS DU PIED DU CHEVAL ET DE SA FERRURE. (Treatise on the Horse's Foot and its Shoeing.) By Professors F. Peuch and X. Lesbre, of the Veterinary School of Lyon. Asselin and Houzeau, Paris.

A work dedicated to the memory of Henri Bouley, divided in two parts—one treating of the anatomy and physiology of the foot of the horse; the other, of its shoeing; this last being divided into three sections: history of shoeing, shoeing of the normal foot, and that of the diseased and defectuous foot,—followed by an appendix containing information upon the shoeing of mules, donkeys, and oxen. The book is illustrated with 300 wood cuts.

In the gathering of the work the authors have obtained much help from the original work of Bouley and from more recent publications in France and other countries, such as those of Goyau, Lavalard, Delperier, Dangel, Aureggio, Pader, Jacoulot, Chomel, Brambilla, Fogliata, Leisering, Hartmann, Lungwitz, Dominick, Moller, Fleming and others, besides numerous advantages that the clinical services of the Lyon School has offered.

BIOGRAPHIES VÉTÉRINAIRES (Biography of Veterinarians)—By Prof. L. G. Neumann of the Veterinary School of Toulouse. Asselin and Houzeau, Place de l'Ecole de Médecine, Paris, Seine. With 42 likenesses drawn by the author.

In this most interesting work of a little over 400 pages, the author has succeeded in gathering from the numerous publications, where they were buried, positive documents upon the life and the work done by men, who, in various points of view, have occupied in the veterinary profession an important place, and who, by their efforts, have most contributed to its elevation. To the long list of veterinarians, are added the names of several physi-

cians and of naturalists, who have written upon the diseases of domestic animals and among whom some have principally contributed to the progress of that branch of medical science.

The necrologic collection which is thus presented goes back to the first times of history, extends to our days and includes hippiatres and veterinarians of all countries. Of course, written in French, by a Frenchman, the veterinarians of his own country occupy the largest part of the book; but, nevertheless, foreign veterinarians have not been ignored and names familiar to our present generation and specially to American veterinarians will be found in Prof. Neumann's new book.

Justice must be given to the author, for his impartiality of judgment. The biographies are not what they generally are, that is eulogious—blame and criticism play the part which were due to a few. By so doing, Prof. Neumann has done well: men are better known after their death and their work better judged.

We have read "*Biographies*" with great interest and feel that all veterinarians desirous to know those who have worked for veterinary science, will derive much pleasure in studying it.

The book is presented by the world wide known house of Asselin and Houzeau, Place de l'École de Medecine, Paris.

PRACTICAL TOXICOLOGY, by Dr. R. Kobert, of the Pharmacological Institute in Dorpat, Russia. American edition by L. H. Friedburg, Ph.D., Professor of Chemistry and Toxicology in the American Veterinary College, New York, and at the Flower Hospital Medical College. New York: W. R. Jenkins, 851 and 853 Sixth Ave.

The long-felt want of a practical work of this kind for the use of veterinarians and students is by this announcement at last to be overcome. The study of these branches in veterinary colleges is always a matter of considerable difficulty, on account of the immensity of the subject, and the practical teaching of toxicology as related to veterinary medicine has always been confined to the most meagre outlines. The character and capacity of the American author of the work which is here announced as in course of publication are a sufficient guarantee of the thoroughness of its execution, and his experience as a teacher in a veterinary college is sufficient to give him the necessary knowledge of what will be most practical and useful for the veterinary surgeon.

ELECTRICITY IN ELECTRO-THERAPEUTICS, by Edwin J. Houston, Ph.D., and A. E. Kennelly, Sc.B. New York: The W. J. Johnston Co., 253 Broadway.

The publication of this neat volume of 400 pages is intended to meet a demand on the part of both the general medical practitioner and the public for reliable information respecting such matters

in the physics of electricity applied to electro-therapeutics as can be readily understood by those not specially trained in electrc-technics. The attainments of the authors for both practical and technical work, by their special training, renders the publication of this work under these conditions especially valuable and reliable to those interested.

REPORTS OF CASES.

A PECULIAR ACCIDENT—RUPTURE OF THE ŒSOPHAGUS.

By W. H. Gribble, D. V. S., Washington C. H., Ohio.

On a warm, sunny Friday afternoon two three-year old colts, the property of Glisson Bros., near Washington C. H., Ohio, were seen at play, rearing, jumping, and nipping each other; both were seen to stand as erect as possible on their hind limbs, facing each other, and then drop to natural position, when one of them walked soberly away and the other could not induce it to return to the fun.

At evening, when the colts were put into the stable, the one showed itself to be sick; it made a pretense of eating (at least the owner thought it ate), drank a little water, and showed a soreness on the left side of neck along the jugular furrow and especially a place about midway between sternum and pharynx.

Saturday morning the left side of neck was considerably swollen, about and below the place of most tenderness; hot applications and liniments were applied, but the swelling increased. During the day the animal drank some and the owner thought it ate a little hay.

Sunday morning I was called; and found a badly swollen neck, both sides (worse on the left), including the pectoral region, hot, tender pitted on pressure, all apparently œdematous; yet not a mark on the skin, or even a place where the hair was knocked off, that we could find. There was no discharge of saliva, the temperature was only 100° F., pulse 48 and respirations not enough above normal to take any notice of, and this two days after the accident; in fact, barring the stiffness and swelling of the neck, the animal looked well and moved about without difficulty, only holding its head very low.

On account of the swelling I made no diagnosis, but thought the trouble a rupture of the fibres of the mastoido-humeralis muscle, caused by over extension.

I passed a large seton through the skin in the medium fis-

sure of the pectoral muscles and a constant dripping of fluid commenced and continued. Thin gruel was ordered kept before him, of which he partook sparingly; yet seeming to suffer no inconvenience from what little he did swallow.

Monday morning I was informed that the animal's head and upper part of the neck was swollen enormously, and the dropping from the seton almost stopped; in fact, suffocation was threatened. Not being able to visit the patient and presuming that the great swelling was due to holding the head so low, allowing almost all the serous effusion to gravitate to those parts, I ordered hot fomentations, and to tie the head up above the level of the breast, which in a short time caused the swelling to rapidly reduce, by the fluid gravitating down the neck and out by way of the seton. Tuesday morning I again saw the animal; the swelling was considerably less, and previous to my arrival he had eaten a few mouthfuls of hay. We offered him gruel, he attempted to swallow some, but apparently all he partook of returned to the bucket through the nostrils; he drank water with the same result. This had not happened at all before; for although drinking sparingly, all he drank seemed to stay down, so I presumed it due to the swelling pressing upon the œsophagus. On account of swelling I could find no pulse at jaw. The owner thought the colt tired, not having laid down for four days, and also, for reasons of my own I decided to throw him; so buckling up a front foot and pulling the head around to the opposite side, after a few efforts to keep from falling, the colt laid down.

In a few seconds he made a few desperate efforts to regain his feet, when suddenly as if in a moment, a great change came over the animal; he laid flat on his side, mouth open gasping for breath; breathing through the mouth, respirations hurried and heart so rapid we could not count the beats, and in a few moments, without a single other struggle, quietly died.

Imagine my feelings; the owner, his wife, sister and neighbors looking on. I must confess to feeling a little foolish, for with pulse, temperature, respirations and general appearance, I had not thought the patient at all dangerous, simply a bad bruise or a few ruptured fibres of a muscle.

I decided to at once make an examination of the neck; so, making an incision through the skin and swollen tissues at the place where the first soreness and swelling exhibited itself, I found the inferior border of the mastoido-humeralis muscle torn across (transverse) about two inches; and in the cavity thus made

and surrounding parts, was a quantity of hay, bran, etc. On removing this, and making the incisions larger and longer, what was my surprise to find a longitudinal rupture of the muscular coats of the œsophagus for a length of nearly seven inches, and of the mucous coat for about three and a half inches, the swelling being, mainly, nothing but the fluids drank by the animal passing out through this rupture and circulating through the connective tissue, etc., and the reason why the gruel, water, etc., drank this morning had returned through the nostrils was due to eating the hay previous to our arrival, it having passed out through the rupture, filling the space and then acting as a choke. One can imagine the bare possibility of a transverse rupture of the œsophagus through over extension, but not, so it seems to me, a longitudinal one; yet, again, even if the colt had been struck or kicked by its playmate during the time it reared, is it not practically impossible to produce such an injury without at least cutting through the skin?

If one is at a loss to account for the accident, or how it could possibly occur, is it not more puzzling why, with such a dangerous trouble, it did not have a greater debilitating effect upon the animal; its danger, readily observable by pulse, respiration and temperature.

I removed about twelve inches of the œsophagus and photographed it, a print of which accompanies this description, and plainly shows the extent of the rupture.*

Will the editor or any veterinarian kindly offer some comments or explanation of the accident, and greatly oblige the writer?

LATER.—Since writing up the case I have experimented some, and think the injury *could* be done by one horse grasping the mastoido-humeralis muscle with his teeth, just when a horse rearing in the air is about to come down, as horses at that point always turn their head, making the neck curve convexly towards their playfellow and the teeth might so catch the œsophagus in behind the muscle, so tearing muscle loose, etc.

UTERINE FIBROMA.

By W. H. CURTIS, D.V.S., Marengo, Ill.

I removed a fibroid tumor weighing two and a half pounds from the vagina of a cow, which had calved the same day, and she made a good recovery.

* As the photograph was too indistinct to be reproduced, and as the correspondent's description is very clear, it is omitted.

FATTY TUMOR IN A DOG.

By W. H. Jackson, D.V.S., New York City.

On the 15th of March I was called by Dr. N—— (a physician) to see an Irish setter with a large, subcutaneous swelling located on the side of the chest wall, between it and the anterior extremity.

The history received was that about a year and a half ago, while in the country, the animal was slightly injured in the woods. After a short time a small swelling made its appearance and gradually increased in size for some fourteen months, when it grew much more rapidly and had reached an enormous size, so much so as to interfere with locomotion.

From an external point of view the swelling was more or less diffuse, non painful, rather hard to the feel except in certain points, where it was soft, giving an impression to the fingers that some fluid was present. The dog was otherwise apparently in perfect health.

The diagnosis was made of a possible subcutaneous fibroma with some fluid in the sac.

On account of the healthy condition of the animal, the prognosis given was favorable unless the brachial plexus be involved or some unforeseen complication arise. The treatment advised was an operation. The dog had been taken to other veterinarians, who wished to operate, but as they would not give a favorable prognosis and as the owner would only consent to the operation being performed in his presence and at his house, the operation was not performed by these men. Under the above conditions, I called Prof. H. D. Hanson in consultation, and to operate. This was March 17th. The dog was placed on a table and put partly under the influence of ether. An incision through the skin of some three inches was made at first in order to tell the exact condition of the underlying parts. This being ascertained the incision was enlarged to some twelve inches and the tumor practically enucleated with the fingers, the knife being only occasionally used. After some fifteen minutes the tumor was removed in its entirety and was found to be fatty, weighing seven pounds and four ounces. The operation was a grand success and practically bloodless. The large cavity remaining was thoroughly washed, packed with bi-chloride gauze and stitched temporarily to hold the dressing in place. A bandage was th n placed around the body to keep the wound clean and to preve t the dog from licking it. The following day the gauze was r •

moved, the wound thoroughly cleansed and again packed and bandaged. The wound, although large, was simple, and had perfect drainage, the opening being at the most dependant part. Seeing that the dog was improving so nicely the physician notified me, after making some four visits, not to call again, as he could attend to the case himself. Whether the bandages were not kept on and the dog licked the wound and became slowly poisoned or what, I am unable to say, but he died some two weeks after the operation.

This possibly proves that the after-treatment in all of its details is often very important; also, that symptoms are apt to vary in the different animals, and are often totally unlike those of man.

STRYCHNIA IN THE TREATMENT OF PARTURIENT FEVER.

By W. H. Dalrymple, M.R.C.V.S., Baton Rouge, La.

On March 20th, at 10 A. M., the writer was requested to visit a high-grade Jersey cow belonging to a herd that supplies one of the large State institutions with milk. The attendant reported the cow having given birth to a fine heifer calf the previous night in a pasture lot adjoining the stable, and when seen by him at 6.30 A. M. was staggering in her gait and several times had fallen.

When we got there we found the animal lying on her side with her limbs stretched out, but not yet quite comatose, which, however, she became soon aftewards. Placed the cow in as comfortable a position as possible (on sternum), and propped her up with sacks filled with hay, got rid of the fœtal membranes and washed out the womb with an antiseptic solution; emptied the bladder, and unloaded the rectum, and as there was a good deal of tympany, punctured the rumen.

As the animal could still swallow, gave a saline cathartic.

Sponged the exposed part of the body with dilute acetic acid, and covered over with warm blankets.

About 11 A. M. commenced administering hypodermatically, an aqueous solution of sulphate of strychnia (Strych. sulph. grs. ss.; Aquæ, ʒi.) every two hours. After four doses, the strength was doubled, and four other doses given. From about twelve to fifteen hours, the animal was in a perfectly comatose condition.

About 4 P. M. on the 21st, slight signs of returning consciousness were observable. The breathing which had been slow and stertorous, now became faster and altogether through

the nasal passages. Slight lachrymation, showing the glands were resuming their function. A small evacuation from the bowels. Returning sensitiveness of the skin, exhibited by the movement of the panniculus to resist flies.

On our next visit, at 7.30 P. M., cow was lying in natural position without assistance, and partook of a gruel, which she seemed to relish.

At 8 P. M. she was on her feet.

From the time the animal first became affected, until she was up, must have been only about forty hours.

We may state that during the attack the cow was turned frequently from one side to the other, the udder kept stripped, and injections per rectum and vagina.

This case seems to be another added to the list of successes following the strychnia treatment, one of which was recorded by Dr. Herbert S. Perley as recently as the February issue of the REVIEW.

This treatment is recommended in Friedberger and Frohner's work, and of course can hardly be looked upon as new, although we do not think it is by any means in common use. It is certainly worthy of more extended trial, being, as it appears to us, extremely rational, and from results, promisingly successful.

MYELITIS IN A DOG—RECOVERY.

By ROBERT W. ELLIS, D.V.S., New York City.

My attention was called to the case in question on Jan. 9 last; when I found the subject, a fox terrier dog, about eight years old, suffering with paraplegia of hind extremities, involving the rectum and bladder.

There was temporary anorexia, which I attributed to the fact that constipation had existed for two or three days. Although he could not stand or even wag his short butt of a tail, he would respond to his name when called, by traveling after you on his forelegs, trailing his hind ones after him, the muscles of which were so relaxed that the limbs would cross each other when he would turn from a straight course.

I began treatment by administering a dose of "salts," which I have found to be quite as responsive in the canine as in the human subject, and from the convenience of its form for carrying it always in the pocket, so that you can dissolve a teaspoonful and administer it at a moment's notice, I have adopted its use almost entirely in canine practice, to the exclusion of the oleagi-

nous form of purge. I immediately followed the administration of the purge by the application of electricity to the lumbar region and hind extremities, and during its application there was a decided movement of the bowels and voiding of urine. At this first application of the electric current, and at the next three or four, the dog seemed to suffer no pain, but after about the fifth or sixth application, there seemed to be hyperæsthesia of the parts, they being very sensitive to the touch, and a look of dread seemed to pass over the dog's countenance at the sight of the battery while there was a continual complaining during its application. The next morning after the first use of the battery and movement of the bowels, the appetite had returned and remained good from that time on. At this time I put the patient on tr. nucis vomicæ, m. iii, three times a day, which I steadily increased until it reached m. xx. three times a day. I continued the use of the battery twice a day, and at each application of it, much to my discomfort, although undoubtedly for the patient's good, defecation and micturition took place. Recovery was gradual, so that at the end of about two weeks he was able to bear his weight on the limbs, if they were placed in a standing position, and a hand was placed against each hip to prevent him falling sidewise, and at the end of three weeks he was able to get up himself and stand, and a day or two later ventured, on being called, and found he could walk, although if he attempted to run he would fall. At this point I began to decrease the doses of nux vomica and to use the battery only once a day and then every second day, and finally about ten days from the time of his beginning to walk, I ceased its use altogether, also that of the nux vomica. After he began to walk his bowels and bladder resumed their normal functions, and I was no longer annoyed at the time of using the battery. The dog at the present time can walk or run at will, has an enormous appetite, and has grown very stout and heavy.

There is still noticeable at times a lack of *entire* control of the hind extremities, as when turning a corner short in chasing a cat; but I am in hopes that that will entirely disappear with the return of the dry weather of the summer season.

TRAUMATIC PERICARDITIS.

By Frank Bales, V.S., Monticello, Ill.

The subject was a cow, supposed to be suffering from pneumonia. History to the effect that the patient had thrived poorly during most of the winter, but had noticed nothing to at-

tract particular attention until the morning of March 17, when she refused food, lying around and moaning. She was due to calve in ten days. I found patient lying in natural position but moaning. When made to stand moaning continued, general appearance unfavorable, and would indicate otherwise than the latter stage of pregnancy. Examination proved left lung to be normal, but could discover no murmur over postero-inferior portion of right. Pulse 104, temperature 103 2-5. A peculiarity of the pulse was its regularity and distinctness, considered along with the rate; venous pulse distinct; no cardiac sounds on *left side*, and but faintly on right.

To save explanations, I pronounced it "heart trouble," and explained the advent of a foreign body as an occasional cause; pronounced the case fatal, prescribing, however, stating a wish to hold post-mortem when death occurred.

Post-mortem.—Opened right thorax, and in so doing opened the pericardial cavity, which was enormously enlarged, forcing its way under right lung, and becoming attached to the wall of right thorax by an inflammatory exudate. Pericardium greatly thickened and filled with an exudate of a milky consistence and of a quantity which would seem inconsistent with truthfulness were I to state it. Posterior surface of heart adherent to pericardium, and the latter to diaphragm. Carefully breaking down the adhesion between the heart and diaphragm, I found a common darning needle fixed in the posterior surface of the right ventricle.

Some of our authorities speak of making a positive diagnosis in these cases, but in this case the symptoms were so much at variance with those laid down in our works, that I should feel some hesitancy in making such. We are told that the heart beats are short, angry and hard. In this case it was just the reverse, the pulse being rapid, but remarkably regular and distinct. No splashing or gurgling; cardiac murmur very faint, distinguished on the right side only, probably explained by the adhesion of pericardium to right thorax, which also accounts for the absence of murmur at this point. Nor was I able to trace the course of the needle from the reticulum to the heart. No adhesion between reticulum and diaphragm. The offender being small and sharp pointed, probably produced but a small amount of irritation during its passage. During the whole period of unthriftiness the owner had noticed no special digestive disturbance, excepting the last three or four days, when she refused all food and water.

RUPTURE OF A BRONCHIAL TUBE.

By H. D. Fenimore, D.V.S., Knoxville, Tenn.

I was called to remove the placental membranes from a Jersey cow that had given birth to a calf the day before. All other symptoms were normal except that her breathing was somewhat labored, resembling emphysema. The next day her breathing was more labored, and a well-developed case of subcutaneous emphysema had set in. The air bags under the skin were very extensive on the sides of the head and neck, and along the back and loins. On questioning the owner he said that when he was drenching the cow before I had seen her, she gave a very violent expulsive effort, so much so that she fell. We put her on stimulant treatment, and let the air out through an incision in the skin. Her appetite and breathing gradually grew worse until her symptoms were so distressing that two weeks later we killed her. At the autopsy we found the subcutaneous tissue of the head, neck and back filled with air. The lungs showed a great number of very large bulbæ, and some consolidation. The right bronchial tube showed a rupture one inch long between the second and third rings from the large bifurcation. The rupture as well as the emphysematous condition of the lungs was undoubtedly caused by the effort to expel the liquid from the lungs, at the time she received the drench, and at the same time set up a certain amount of traumatic pneumonia. The air escaping from the rupture passed forward along the trachea into the subcutaneous tissue of the neck, and thence to other parts of the body.

AMPUTATION OF THE UTERUS OF A COW.

By W. H. Curtis, D.V.S., Marengo, Ill.

I was called Dec. 30, 1895, to the farm of Mr. P. to attend a cow that had calved the night previous. Found inversion of uterus; could not replace it. Amputated at neck by using three ligatures, ligating in three sections. Used creolin as an antiseptic, followed by daily injections of solution of boracic acid. Cow made a good recovery.

Grants to Medical Laboratories.— 250,000 francs (50,000 dollars) are yearly granted by the French government for the laboratories of the Institute Pasteur, of the Veterinary Schools of Alfort, Lyon and Toulouse, and some of the schools of medicine. These funds are to be used for experimental researches and principally the study of the serums and vaccines.

SOCIETY MEETINGS.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular meeting of this Association was called to order at 9 P. M., April 7th, at the Academy of Medicine, by the Vice-President, Dr. Giffen, who expressed sincere regret at the circumstances which called him to fill the President's chair (Dr. Huidekoper's serious illness).

On roll call, the following members responded: Drs. Bretherton, C. C. Cattanach, J. S. Cattanach, J. S. Cattanach, Jr., Delaney, Dair, Ellis, Ferster, Finlay, Giffen, Gill, Hanson, Jackson, Johnson, Knott, Lamkin, Lellman, Machan, Mac Kellar, Neher, O'Shea, Ryder, Sherwood, Serling and Turner—(25).

Reports of Committees.—The Board of Censors (Dr. Gill, Chairman) reported the following:

WHEREAS, Dr. S. K. Johnson, by contracting with the Mutual Live Stock Benefit Insurance Company (?) has violated Article VII. of the Code of Ethics, therefore, be it

Resolved, That the Board of Censors recommend to the Association that if the said Dr. S. K. Johnson does not show satisfactory evidence of having resigned and severed all connection directly or indirectly with the said Insurance Company on or before October 15th, 1896, he be expelled as a member of this Association.

The court records not having been produced in the case of Dr. Turner vs. Dr. Finlay, as was ordered at the last meeting, the charges against Dr. Finlay were dismissed, and he was honorably discharged.

Owing to the absence of Dr. Glover from town, his case was laid over until the next meeting.

The following was offered:

WHEREAS, It has come to our knowledge that one or more members are directly or indirectly connected with Live Stock Insurance Companies, therefore, be it

Resolved, That all members so connected will either sever their connection with such companies, or suffer expulsion.

Moved and seconded that the report be accepted. Carried.

Moved and seconded that the Secretary be authorized to notify any members who may have any connection with insurance companies, to sever such connections, according to report of Board of Censors. Carried.

Committee on Legislation (Dr. O'Shea, Chairman) reported that the Cole Amendment Bill is to go into the Senate next week, and that the previous Cole Bill is killed. In reference to resolutions which were to be offered to the several city departments and be introduced at Albany, the doctor reported that he had been advised that it was too late to pass that bill this year, and stated that the Association's counsel suggests that the com-

mittee see the heads of the various departments before introducing the bill at Albany and thereby secure their mutual co-operation.

Dr. Gill suggested to the meeting that the Civil Service Commission be conferred with on this matter, which suggestion was approved by the members.

In reference to the jury bill, Dr. O'Shea reported that he had had Senator Sullivan's positive assurance that the bill would come out. Moved and seconded that the report be accepted. Carried.

Reports of Cases.—Dr. Neher reported a few cases of flatulent colic in which he resorted to puncture of the stomach with good results, claiming that puncturing of the stomach would often save cases that could *not* be saved by puncturing in the flank. Great eructations of gas was an indication for stomach puncture, and that point most resonant on percussion, just posterior to the cartilage of prolongation of the sternum, being the seat of puncture.

Dr. Hanson reported a case of fatty tumor weighing seven and one-quarter pounds which he removed from the sternal region just posterior to axilla in an Irish setter dog, which he had been called in consultation to see, with Dr. Jackson.*

A number of interesting cards, issued by so-called veterinary surgeons, were read by Dr. Neher, and referred to the Judiciary Committee for investigation.

Moved and seconded that the Secretary be authorized to communicate with the Secretary of the State Association and with Prof. Law, of Cornell University, enlisting their aid and co-operation with the County Association in securing a proper guardian for the interests of the veterinary profession of New York State, at the capital, while the legislature is in session next year. Carried.

Moved and seconded that the Secretary secure the list of registered men in New York County obtained by the Judiciary Committee and have it printed. Carried.

Moved and seconded that the meeting adjourn. Carried.

ROBERT W. ELLIS, D.V.S., *Sec.*

CALIFORNIA STATE VETERINARY MEDICAL ASSOCIATION.

The first quarterly meeting of the California State Veterinary Medical Association for the year 1896 was held in the lecture-

* The story of this case will be found elsewhere in this issue.

room of the California Veterinary College, San Francisco, March 11th.

The meeting was called to order by President Prof. W. F. Skaife, and on roll call the following members answered to their names: Drs. Orvis, Pierce, Spencer, Sr., Spencer, Jr., Skaife, Archibald, Graham, Steers, Fox, Jackson, Fabbi, O'Rourke, and Cunningham. Visitors: W. McLelland and the students of the California Veterinary College.

The minutes of the previous meeting were read and approved.

The Treasurer, Dr. Fox, being absent from the annual meeting in December, now read his annual report for the year ending Dec. 11, 1895, which, after being fully considered, was received and placed on file.

The committee on communications with the Governor in regard to appointing a commission to devise ways and means whereby the public health and the live stock interests of this State might be protected from the ravages of contagious and infectious diseases, reported that they had been promised an audience in the near future. On motion the report was accepted and the committee given further time.

President Skaife called Dr. H. A. Spencer to the chair, before delivering his inaugural address.* The address proved to be very interesting. The Doctor made mention of a great many important points to be remembered in the practice of veterinary surgery successfully. He was very highly complimented by the members present for the able manner in which he had addressed them.

Dr. Jackson, of Oakland, next introduced the subject of Parturient Apoplexy. A very interesting discussion followed, in which most of the members present took an active part, their remarks being directed principally to the cause of the disease.

Dr. R. A. Archibald tendered his resignation as a member of this association. After considerable discussion, on motion by Dr. H. A. Spencer, the resignation was accepted.

Dr. Cunningham introduced the subject of milk inspection, and requested Dr. H. A. Spencer, of San Jose, and Dr. F. E. Pierce, of Oakland (at present inspectors in the above named cities), to explain in detail the mode of procedure of examining milk in their respective cities, which they did to the entire satisfaction of the members present. Drs. Cunningham and Steers also made some interesting remarks on the subject.

* Will be published in June REVIEW.

Pres. Skaife being called away, appointed Dr. Steers as President *pro tem.* President pro tem. Steers appointed as essayists for the next meeting A. A. Cunningham, F.C.S., of San Francisco, and Dr. O'Rourke, of San Francisco.

By request, Dr. Steers also agreed to read a paper at the next meeting.

On motion the meeting adjourned to meet in the same place on the second Wednesday in June. D. F. Fox, D.V.S., *Sec.*

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The March meeting of this Association was called to order by Dr. John R. Hart at 8 P. M. on the 10th. Coming so near the State meeting the attendance was remarkably light, yet during the discussion on azoturia there were many new and valuable ideas advanced.

Those present were Drs. John R. Hart, T. B. Rayner, Chas. Lintz, J. Johnson, J. T. McAnulty, H. J. McClellan, W. H. Hoskins and W. L. Rhoads.

The Chairman of the Legislative Committee reported having made another strong move toward awakening the sympathy of the legislators in behalf of the veterinarians, at the same time awakening a patriotic spirit within themselves, as it should be, when they realize their own to be the only civilized country which does not recognize its veterinarians.

Dr. Lintz offered a resolution, seconded by Dr. Rhoads, which extended to Dr. Hoskins a hearty vote of thanks for the sincere efforts he had made in the furtherance of this bill.

A communication from Dr. H. B. Felton, containing his resignation from active membership in the Keystone, was now read: the resignation was immediately acted upon and accepted.

An application from Dr. F. S. Allen for admittance to membership was now read, and in accordance with the by-laws, laid upon the table for consideration at the next meeting.

Dr. Allen now reported three cases of azoturia, one subject having two attacks within five weeks, and made the most complete and rapid recovery from the second attack. The first case was a black gelding, five years old, 16½ hands high. The treatment followed was purgation, ext. buchu, ext. juniper and acetate of ammonia, giving a dose every hour for first day, and five doses the second day, keeping the horse well covered to produce diaphoresis, and drawing water every few hours, using liniments and friction freely over the spine. He was able to stand on the third day, but on being moved about dragged one hind

limb; this was somewhat improved by blistering, and subsequently disappeared upon steady working.

The treatment of the second case was similar, but in this he used acetate of potash instead of ammonia. This horse had a return of the trouble within five weeks after recovery, when he repeated the treatment and in addition gave half a pound of bicarbonate of soda every six hours. The recovery from this (though a severe attack) was very rapid and complete.

Dr. Johnson said that he had found in many of these cases that the urine, though to all appearances albuminous, was practically free from albumen, but was loaded with an excess of salts. He said many of these cases so closely simulate paraphlegia that a correct diagnoses is difficult.

Dr. Hoskins thought many cases resembling azoturia are incorrectly diagnosed on account of the many cord lesions, and said he had found in many cases that on first drawing the urine was very light, assuming a darker color as the disease progressed. He agreed with Dr. Allen in the belief that the weather has a great effect on the disease, yet in some countries they have it in extremely hot weather. He found in many cases the urates and hippurates amounting to 25 per cent., while in the normal urine there are but 3 to 5 per cent. The Germans use cold packs of ice and bran along the spine, and claim good results.

Dr. Lintz reported having two cases in June, one being driven over 20 miles. The recovery in each case was good.

Dr. Johnson cited a case in a two-year-old, after having done a very fast mile on a very cold day, becoming worse for three or four days, yet making a complete recovery in three weeks. He also described the operation upon the corticle zone for paralysis in man.

Dr. Hoskins spoke of a number being recorded in the city directory as veterinarians who were not registered as such with the city prothonotary.

The meeting adjourned to reconvene Tuesday, April 14, 1896.

W. L. RHOADS, *Secretary.*

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

REPORT OF CORRESPONDING SECRETARY.*

Mr. President and Gentlemen:—

This year now drawing to a close has been an exceedingly

* Read at the meeting March 4, 1896.

busy one for those whose duty it has been to conduct the affairs of this Association. These months of hard and earnest work, on the part of your worthy President, Legislative Committee and others, has at last been crowned with success. This Association may well feel proud of what it has achieved through its committee, officers and members during the past year.

To the committee whose task it has been to draft and secure the passage of these bills—one for the establishment of a "State Board of Veterinary Examiners"—another for the establishment of a "State Live Stock Sanitary Board"—we, as well as the people of this city and State, owe a deep debt of gratitude. Their labors have been arduous and fraught with innumerable obstacles. At the time of the drafting of this bill for the establishment of a State Live Stock Sanitary Board there were in the field not less than three other bills—all asking for the establishment of some form of a State commission. These bills, it seemed, aimed more particularly to benefit one class of people, or those who advanced or supported them.

Your committee found also a large portion of the farming community arrayed against them, or the veterinarians, owing partly to unwise and untimely orders issued by the Board of Health, and partly to the powerful influence of men high in office, who, at the same time, enjoyed the confidence of a large portion of the farmers, and who, for some selfish reason, set about to poison the minds of the farmers, and array them against the veterinarians of this State, leading them to believe that the object of the veterinarians' bill was a selfish one. Then, again, there was the all-powerful press arrayed against them. Influential papers, not only in this city and State, but in other States, were used to defeat this bill. And this is not all. The Cattle Commission of Massachusetts had at that time entered upon a crusade for the extermination of tuberculosis in that State through the use of tuberculin as a diagnostic agent. This had aroused the farmers of Massachusetts from one end of the State to the other; and being in an experimental stage, the opponents and enemies took advantage and made all they could of it, in turning the farmers and people of this State against our bill, fearing that the veterinarians of this State would pursue much the same course by the use of tuberculin. This was the condition of affairs in this State when your bill for the establishment of a "State Live Stock Sanitary Board" was presented to the Legislature for enactment. These obstacles had to be met and overcome. Fortunately, gentlemen, we had one great advantage

over our opponents. We were in the right, and "Right means Might." Facts are convincing, and by presenting facts and arguments to the legislators—Senators and the Representatives, to many of the influential farmers and friends, as well as the Governor—and by the assistance and endorsements from boards of health, health protective associations, physicians and veterinarians through the State, you have as a result of all this hard work to-day laws enacted establishing a "State Board of Veterinary Examiners" and a "State Live Stock Sanitary Board."

And more than all this—you have seen the State of Pennsylvania placed in the front ranks with a State Veterinarian who stands second to none in this country. Thus it is, the Governor of this State has done honor to his State and to the veterinary profession in appointing our worthy President as State Veterinarian of Pennsylvania, a position to which he is peculiarly fitted, owing to his character, ability, his thorough and special line of education. It is through such appointments of worth, fitness and ability that a method is found to elevate the veterinary profession in the eyes of the community and thus place the veterinarians more in those places of trust for which they, by their special line of study, are fitted—sanitary boards, boards of health, meat and milk inspectors, etc.

It is to our State Veterinarian we are now to look to the establishment of a thorough systematic sanitary supervision of the health of all animals, to the control, suppression and eradication, as far as possible, of all contagious and infectious diseases, through the enactment of proper laws and measures for their control. Upon the early recognition of these diseases as well as the ability to introduce proper and prompt measures to grapple with them depends their control and eradication.

During the past year all the members of this Association were furnished twice with statements of the amount of their indebtedness. All those who were in arrears were furnished with statements and notified from three to five times, and urged to remit the amount of their indebtedness, and thus place themselves in good standing once more in this Association. On November last all members were furnished with a statement of their indebtedness and slips of the amendment to the Constitution and By-Laws. Also the motion passed at our last semi-annual meeting as a matter of information. Not less than one hundred letters were collected or received as a result of this amendment and motion. All of which have been answered and placed on file for future use. This motion has failed, as yet, to

bring about the desired result. None of those whom it was intended to arouse have as yet paid in a single dollar. No steps have been taken to force a settlement, owing to the fact that many of the applications are not in proper shape at the present time. It was not deemed wise, therefore, to act till we were sure of success.

I would suggest that in the future all applications be filled out properly and accurately, that all the members of the Board of Censors sign them as well as approve them.

I would also suggest that a special book be kept by the Corresponding Secretary containing the Constitution and By-Laws for the signatures of all new members.

There are at the present time 118 active members, 14 members having been dropped or suspended for non-payment of dues.

Since our last meeting we have lost one of our number, Dr. W. U. Custer, of Reading, who died Dec. 1, 1895, making the number of active members 117.

I have received three applications for membership, Drs. Geo. B. Jobson, A. O. Cawley, and Chas. Falconer.

All letters during the past year have been answered and filed for future reference.

All new members have been notified and furnished with the Constitution and By-Laws of this Association.

All certificates that have been paid for have been forwarded to the members.

I have some seven certificates uncalled for, and have not delivered them owing to the fact that the members have not paid their initiation fees.

I am awaiting a remittance.

Respectfully submitted,

March 3, 1896. F. S. ALLEN, *Cor. Sec.*

MONTREAL VETERINARY MEDICAL ASSOCIATION.

A regular meeting of the Association was held on Thursday, Feb. 20th. The honorary President, Dr. D. McEachran, occupied the chair. After the roll call and reading of the minutes of the previous meeting the librarian reported the addition of several new works to the library.

A committee was appointed of Dr. Dawes, Messrs. Kee and Ness, to draft resolutions on the death of Dr. Donald Campbell, '82.

Mr. F. W. Kee furnished the case report for the evening, describing a peculiar case of "Suppurative Mediastino-Pericarditis

in a Horse." A prolonged discussion followed on the pathology of the case, also on the general treatment of thoracic affections.

Mr. J. A. Ness read an interesting paper on "Horse Breeding," describing the selection, care and management of breeding animals. The relative merits of Clydes and Percherons came first under discussion, it being the consensus of opinion that the former were better adapted to the climate of this country. Dr. D. McEachran closed the discussion by an interesting historical resume of the origin of the French Canadian horse. "They are," he stated, "the descendants of French mares and Arabs or Barbs imported from the Levant, by the officers stationed in the Province during its occupation by the French."

After further remarks on the subject of "first impregnation," the meeting adjourned.

A regular meeting of the Association was held in the library of the Faculty of Comparative Medicine and Veterinary Science on Thursday evening, March 5. There was a good attendance of members, the second Vice-President, Mr. E. C. Thurston, occupying the chair. After the roll call and the reading of the minutes of the previous meeting the Secretary read a communication from Dr. A. T. Rowat, of Honolulu, on "Paracentesis Abdominis." The technique of the operation and its indications were described by the writer in a lucid and entertaining manner. He had in his own practice proved the great utility of puncturing the intestine in cases of flatulence and attributed the unfortunate sequelæ which some practitioners ascribe to the operation as due to lack of asepsis or of delaying the operation until the case is beyond recovery.

In the discussion following, Drs. C. McEachran and Martin pointed out that, with proper precautions, the operation was not only simple but was safe and well warranted by the good results to be obtained.

Concerning peritonitis in the horse as a sequelæ it was thought that the peritoneum of that animal is not so liable to inflammatory lesions following trauma, or surgical interference, as is generally supposed, and many instances were adduced in support of this view.

A motion by Mr. Kee was unanimously carried "that the Secretary be instructed to convey to Dr. Rowat the thanks of the Association for his communication, which is most highly appreciated, evidencing on the part of the writer the interest he maintains in the welfare of the Association."

Mr. C. H. Higgins read a case report of "Traumatic Ventral Hernia," with rupture of the udder in a cow that evoked further discussion on peritonitis, during which Mr. Higgins pointed out the great field, as yet untouched, for research concerning the contents of the intestinal tract of the various domestic animals from a bacteriological point of view.

Mr. S. C. Richards presented an admirably prepared paper on "Acute Specific Pleurisy in the Horse." He described the clinical history and post-mortem changes found in an animal which he recently had under his observation. In the discussion following Dr. Martin stated that in human practice a bacteriological examination of the pleuritic effusion was an invaluable aid in arriving at a correct diagnosis of the pathological changes present, and why should the same not be true of veterinary practice.

Mr. Higgins reported on behalf of the Experiment Committee that the dog from which the spleen had been removed six weeks previously had been destroyed. Beyond a chronic peritonitis at the site of the operation no other abnormalities were noted. There was no glandular enlargement of any description. Blood counts were not made.

Mr. J. H. Patterson promised a paper on "Colic" for the next meeting, and adjournment took place.

HARRI H. DELL, *Sec.-Treas.*

AMERICAN VETERINARY COLLEGE MEDICAL ASSOCIATION.

At the regular meeting of the American Veterinary College Medical Association, held in the lecture room, Jan. 10, Mr. S. S. Buckley read a paper on "Crude versus Concentrated Medical Agents." The paper brought out the facts that ofttimes the crude drugs were impure, and therefore the expected action of a medicine failed, also that in a country practice it was a bulky way to carry medicines. The discussion pointed out some objections, mainly the liability of abscesses forming where the injections were made. Also that it would be a dangerous and expensive practice to leave a hypodermic syringe with the ordinary attendant. Adjourned.

The regular meeting was held in the lecture room Feb. 14, President Dr. Clayton in the chair.

Mr. DuBois read a paper on Purpura Hæmorrhagica. He said the real cause was not understood, but it was liable to occur to a debilitated subject after febrile diseases of the respiratory

system. The suddenness of the attack was characteristic, also the swellings. Spoke of these swellings occurring around the head, often interfering with the respiration, but condemned the use of the tracheotomy tube, on account of the liability of gangrene from the poor condition of the blood. He thought in many cases a speculum in the nostrils would be enough to save an animal. In treating these cases, good results had been had from the use of iodide of potash, injected intratrachially. Another good treatment was 4 drachms of black coffee three times a day, at the same time giving strychnine.

The number of meetings remaining being limited, Mr. Lea also read his paper at this meeting. Subject: "Horseless Carriages Not the Fashion!" He enumerated a number of instances where the electric carriage was incomplete, as the difficulty to get started or to stop gradually, their great weight, danger of explosions, great amount of mechanism, which was constantly getting out of order, the amount of oil that was needed to lubricate the machinery, and the liability of getting it on the clothing. The motor took up so much room that it made a pleasure vehicle look very clumsy, and if the vehicle was to be used for delivery purposes there was no room for the packages.

He thought the number in use was much exaggerated, and noted two instances where well known firms in this city had given them a trial and were compelled to hire a horse to get them home again.

The regular meeting was held in the lecture room Feb. 21st, President Dr. Clayton in the chair. Mr. Grutzman read a paper on "Mallein as a Diagnostic Agent in Glanders." First prepared by Helman and Kalving, in Germany four years ago. There were some doubting ones, but statistics show that Germany had 95 to 96 per cent. positive results, and France even as high as 99 per cent., the unfavorable results probably due to impure quality of the mallein. Mallein is claimed to be the best and quickest diagnostic agent for doubtful cases, and shows distinct and characteristic reactions, no matter how recently the horse is affected. The reaction only to be relied upon if the temperature rises at least two degrees and at the same time a large and painful swelling appears at the point of injection, also the other phenomena, as sudden debility, colicky pains, etc. If the reaction is entirely negative it is safe to say the horse is not affected, no matter how suspicious, provided the mallein can be relied upon, and the proper quantity was used. To prevent errors the horse

should be kept in a place of even temperature; take temperature of horse for at least twenty-four hours before injection at intervals of two hours, to be sure no fever is present. Take the temperature the last thing before injecting, and then watch the animal carefully,—and if he is affected you will soon observe colicky pains, large amount of fæces passed, no appetite and trembling all over; in about eight hours temperature will begin to rise, 2° to 5° above normal, generally highest towards midnight; look for the swelling; if the temperature stays elevated for about thirty-six hours and does not disappear before that the horse is without doubt infected with glanders. But if all these symptoms appear and disappear inside of twenty-four hours the case is a little doubtful; so after four or five days inject again. Brutes' mallein, from France, is used in half cubic centimetre doses, diluted with two cubic centimetres of distilled water. The paper was well discussed by Messrs. Rosekrans, S. S. Buckley, Zucker, Wescott and DuBois. Adjourned.

The regular weekly meeting was held in the lecture room, Feb. 28.

Mr. Mead read a paper on "Tuberculin as a Diagnostic Agent in Tuberculosis." An English Royal commission definitely proved in February, 1890, that the meat or milk of any eatable from tuberculous animals could transmit the disease to healthy human beings or animals; carnivora and herbivora are liable to it, but the pig is especially subject. Infection through the digestive track is mostly due to improperly cooked meat or infected milk. The tuberculous material is seldom found in the meat, but generally in the internal organs, membranes, and glands. Where tuberculous material is found on the meat it is generally due to want of cleanliness in handling. The udder is a very common seat of these deposits, and the nodules can often be felt by external manipulation. Therefore, milk from such animals is very dangerous. Some think that a good deal of the meat from a tuberculous animal can be saved without danger of infection to the consumer, especially if the seat of disease be in the lungs or mammary glands. Human doctors try to keep life in their patients by keeping the system in such a condition that it can feed the destruction as fast as it breaks down. But in our patients it is better to kill at once and so prevent its spread. It is often difficult to diagnose an obscure case of tuberculosis, and the diagnosis is not alway positive. Tuberculin as a diagnostic agent was first prepared and used by

Gutman, of Germany, in 1891, with wonderful results, 95 per cent. of the cases diagnosed by means of this agent proving correct on post-mortem. Tuberculin is a yellowish liquid, glycerine extract of the cultures of the tubercle bacillus, the dose being 1 cubic centimetre. Prepare the animal beforehand, and be sure there is no fever and the temperature of the stable is about equal. If the animal is affected you get a rise in temperature of 2 or 3°, swelling at the point of injection, appetite and milk secretion impaired; restlessness and debility. Some authors claim that tuberculin gives pronounced reaction in actinomycosis, while in tuberculosis in very advanced cases it gives only weak reactions, but tuberculin as a diagnostic agent does not lose its value on account of that, because advanced cases of tuberculosis can be diagnosed without the aid of tuberculin. After discussion, adjourned.

COMMUNICATIONS.

THE U. S. V. M. A. PRIZE.

FARGO, North Dakota, April 9th, 1896.

Editor American Veterinary Review:

DEAR SIR:—I have read your editorial comments, the article by Dr. Tate Butler, and the one by Dr. L. McLean on the above subject.

My experience with the workings of the Prize Committee has been somewhat unsatisfactory. I went to considerable trouble and expense in order to carry out a line of investigation, which as yet has been worked upon very little. The results were satisfactory. Two years ago I prepared a paper on the work which I had had in hand for over two years, and mailed it to the Chairman of the Prize Committee, wishing to compete for the prize offered by the Association. I heard nothing therefrom, not even an acknowledgment of the communication, until about four months after the Society had held a meeting; I then wrote the chairman of the committee that I had forwarded him an article and asked whether it had been presented to the Association. His letter informed me that it had not, that he had mislaid the communication, for which he was very sorry. I thought possibly at first that the communication was not considered worthy, and for that reason had been laid aside, but I had three requests in as many months from the chairman of the committee, asking that he be allowed to publish the article in

the journal with which he was then connected. That led me to believe that he considered the article of some value, or he would not have requested the privilege of publication.

That has been my experience with the prize committee, and had I been successful in having my article printed at that time, I should have had other articles ready.

I do not believe that any article ought to be printed in competition for the prize which does not represent an original line of investigation, but it is rather discouraging when one has taken considerable pains and time and spent considerable money in conducting such investigation, to write a paper and then have it mislaid.

It seems to me that the prize should be continued.

Yours truly,

T. D. HINEBAUCH.

THE OHIO VETERINARIANS TO MEET IN BUFFALO.

WASHINGTON C. H., Ohio, April 10, 1896.

To the Members of the Ohio State Veterinary Medical Association:

In THE AMERICAN VETERINARY REVIEW, March number, page 809, is a letter from us to you in reference to changing semi-annual meeting place from Columbus, Ohio, to Buffalo, New York. Your officers did not consider that they of themselves possessed the authority to make the change, believing that the members only who had named Columbus could revoke their action, so in accordance with this view your secretary was instructed to write every member that was present at our last meeting (19), and has received sixteen answers, fifteen of which say "meet in Buffalo."

The Ohio State Veterinary Medical Association will therefore convene in Buffalo, New York, in semi-annual session on Sept. 1st, 2d, 3d, 1896. W. H. GRIBBLE, *Secretary.*

POISONING BY ERGOTIZED OATS.

SALEM, Oregon, March 17, 1896.

Editor American Veterinary Review:

We have in this country a good many cases of poisoning by ergot and darnel grass. The ergot is found in oat hay and oat straw, and horses fed on either suffer from the ergot. The signs of poisoning are palpitation of the heart, tucked-up appearance at the flank, irregular respiration, slow, soft pulse, ver-

tigo, staggering gait, holding the head very low, unable to raise it, and falling if you attempt to administer anything by the mouth that necessitates the raising of the head, crossing of the legs if you attempt to back them.

What I wish to know by stating the above is, are there any specifics for ergotal poisoning? The books give none. By answering this through THE AMERICAN VETERINARY REVIEW, you will confer a great favor on one that has much to do with such cases.

Very respectfully,
D. D. KEELER, V. S.

[NOTE.—We know of no specific for this class of poisoning. The reasonable thing to do, however, is to withhold all diseased food, and to combat the symptoms as presented. If any of our readers have had experience with cases presenting the narrated symptoms, we would be glad to publish their observations.—ED.]

BOARD OF VETERINARY EXAMINERS OF VIRGINIA.

Governor O'Ferrall, of Virginia, has appointed the following members of the State Board of Veterinary Examiners: W. H. Harbaugh, V. S., of Richmond; E. P. Niles, D. V. M., of Blacksburg; George C. Faville, D. V. M., of Norfolk; Charles McCulloch, D. V. S., of Howardsville; A. J. B. Burkholder, D. V. S., of Staunton. The appointments, which are for a term of four years each, beginning May 1, 1896, are made under the law passed during the last session of the General Assembly and approved February 27, 1896.

COMMUNICATIONS RECEIVED.

Communications are acknowledged from the following: W. J. Martin, V. S., G. A. Miller, D. V. S., J. A. Couture, V. S., F. H. Miller, John P. Haines, Esq., F. W. Skaife, M. R. C. V. S., W. F. Derr, V. S., J. R. Kelso, D. V. S., T. W. Watson, V. S., Robert Robb, V. S., James A. Waugh, V. S., F. C. Williamson, V. S., W. V. Bieser, D. V. S., L. L. Conkey, V. S., M. Ch. Morot, Otto Faust, D. V. S., John Minchin, V. S., Olaf Schwarzkopf, V. M. D., Leonard Pearson, V. M. D., W. H. Hoskins, D. V. S., George G. Van Mater, M. D., D. V. S., J. J. E. Poe, V. S., L. H. Howard, D. V. S., and several others.

NEWS AND ITEMS.

DR. HUIDEKOPER, who has been sick some time, is, we are glad to hear, improving.

THE Veterinary Medical Association of New York County held its meeting for the first time at the Academy of Medicine.

VETERINARIANS of Brooklyn should get together and form a society of Veterinary Graduates of Kings County, or join the Vet. Med. Assoc. of New York County.

NEW VETERINARY LAW IN GERMANY.—A unification of the German legislation concerning the laws of warranty is now before a committee appointed to that effect.

THE ANNUAL MEETING of that wonderfully energetic and interesting body of veterinarians, the Virginia State Veterinary Medical Association, will be held in Norfolk, June 24th.

THE amendment to the bill to exempt veterinarians of New York and Kings counties from jury duty is awaiting the action of the Senate, which will undoubtedly take place very shortly.

DRS. HOSKINS AND PEARSON, of Philadelphia, appeared before a committee of the legislature in opposition to the proposition to reduce the Board of Cattle Commissioners of Massachusetts.

THE thirteenth annual dinner of the Massachusetts Veterinary Association occurred at Young's Hotel, Boston, on the 22d ult., following an interesting meeting of the association, which will be reported in the June REVIEW.

INDIAN PEAS, used as an adulterant of grain, have proven so disastrous to horses in England that the *Veterinary Journal* advises horse-owners to have inserted on their invoices of foreign grain that such grain is free from Indian peas.

DR. OTTO FAUST, of Poughkeepsie, has been elected secretary of the Alumni Association of the American Veterinary College. He is a good man in the right place and we hope that he will receive the co-operation of all veterinarians.

HYGIENE OF MILK.—From observations made by Fiorentini, at Milan, it is proved that the milk sold on the markets of that city contains in 18 per cent. of the cases experimented with, the bacterium coli and in 10 per cent. the bacillus of tuberculosis.

T. J. TURNER, D. V. S., of Glasgow, Mo., late the most efficient and conscientious State Veterinarian of Missouri, failed to be reappointed upon the expiration of his last term. It is said that politics are alone responsible for the change. His record certainly was not consulted.

IT was a pleasure to all present at the commencement exercises of the A. V. C. and the banquet, to see Prof. J. L. Robertson again in his place and so much improved in health. On the other hand—there was a temporary vacancy—that of Prof. A. F. Liautard, who is in Paris.

THERE is a bill now pending in the Iowa Legislature, the title of which is "To Protect the Live-Stock Industry of Iowa," permitting only graduates from veterinary colleges to use the title "veterinarian" or "veterinary surgeon," and confining empirics to the use of the term "farrier."

DR. NEHER, at the last meeting of the New York County V. M. Association, reported cases where he has punctured the stomach of the horse in cases of tympanites of that organ. Although it takes a man with an iron nerve to puncture that viscus, yet the Doctor claims many lives may be saved, and is well worth a trial where other treatment fails.

THE APPOINTMENT of State Veterinary Surgeon for Iowa has been given to Dr. J. I. Gibson, of Denison, Ia. He will succeed Prof. M. Stalker, of the State Agricultural College, whose term expired in April. Dr. Stalker has very capably filled that office ever since 1884, at which time the twentieth General Assembly of Iowa created the office.

DELICACY OF HEARING IN HORSES.—It is a well-known fact that horses hear noises that escape the attention of men. It is reported in a recent publication of Italy that at the time of the earthquake of La Riviera, horses a long time before the accident gave symptoms of increasing anxiety. While the inhabitants heard under-ground noises only a few seconds before the first shock, horses had already manifested their fright seventy-two hours before.

PARTURIENT APOPLEXY.—W. H. Curtiss, D. V. S., of Marengo, Ill., writes: "I notice in the February REVIEW that Dr. Gilbert, of Leesburg, Ohio, had discovered a sure cure for parturient apoplexy, but had not disclosed the secret. I have recently treated ten cases as follows: Fl. ext. calabar bean, fl. ext. jaborandi, aromatic spirits ammonia, spirits nit. ether, āā two ounces—making an eight-ounce mixture. Give one ounce every hour,

or every two hours, as required. Use catheter to empty bladder, if necessary, but do not give any cathartics, such as salts, etc."

THE REVIEW is increasing in circulation very fast; it has been often said that the great body of American veterinarians were not readers, that not one in five were subscribers, but we have discovered that if they are once made aware of the great benefits that our journals are to them practically, they are ready enough to become subscribers, and when once we get them we will be pretty certain to hold them ever after. The veterinary journals of this country are now inferior to none in the world, and every man who has any ambition and is worthy of his profession should be a subscriber to all of them.

"AS ITHERS SEE US."—A recent letter from a veterinarian of national reputation concluded as follows: "The REVIEW has certainly made wonderful growth both in quality and quantity of contents and reflects great credit upon the editors in the selection and arrangement of the abundant material it offers to its readers as well as in its careful proof-reading and general appearance. A credit to the veterinary profession of America." Another letter from a well-known educator, and veterinary writer: ". . . I intended to write you before this and, congratulate you on the very noticeable improvement in the REVIEW. . . ."

QUALITY OF HORSE MEAT.—Horse-meat is very healthy and would be as tender as that of beef, if horses were consumed young and after fattening. It tastes much like venison and is considered more nourishing than the meat of steer or mutton. Horse meat is of a red brown color, and darkens to the contact of air. The muscular fibres are long, fine and on cut shows a finer grain than that of beef. It demands longer cooking. In mares and geldings, it has a more delicate taste. The meat of donkeys is very much like and resembles a little that of veal. That of mule is still more delicate and has some analogy to that of deer—it is very tender and has a very savorous taste.

VETERINARY JOURNALISM IN AUSTRALIA.—On account of the limited number of veterinary surgeons in Australia two attempts to establish veterinary periodicals in that country have resulted disastrously financially to their promulgators. In the third attempt (now being made) such a result is sought to be avoided by combining *The Veterinary Record* with *The Farm and Home*, an old-established and influential journal, devoted to agriculture and live-stock interests. *The Record* is edited by W. T.

Kendall, M.R.C.V.S., Principal of the Melbourne Veterinary College, and H. Sugden Ruddick, V.S., lecturer at the same college. The style of the articles is largely of the agricultural type, and intended, in a measure, to awaken an interest in veterinary medicine among the stock-owners of the colony.

VETERINARIANS OUGHT TO REMEMBER—To try to further advance your profession and thus benefit yourselves..... To join all the veterinary societies at your disposal..... To form societies in places where there are none and make them societies of veterinary graduates..... To write articles or reports of cases for the AMERICAN VETERINARY REVIEW..... To report to the same, any news of interest that will benefit veterinarians at large..... To subscribe for the leading veterinary journals. ..... To buy some of the newer works on veterinary medicine and surgery..... To make laws to regulate veterinary practice in your respective states and to enforce them..... To see that veterinary graduates hold the public offices in preference to non-graduates..... To try to prevent non-registered men from practising..... To use the various new remedies and modes of treatment and report the results of the same for the benefit of the profession..... To work in harmony with your neighbor practitioner; it is better for both and for the profession..... To not be hasty in judging other veterinarians, lest you yourself might be more severely judged..... To listen to the advice of older and experienced men.....To make your name by constant and conscientious attention to practice..... To advise all veterinarians to subscribe for the AMERICAN VETERINARY REVIEW.—"F. X. T."

REVIEWS WANTED.

By the REVIEW—August, 1895. Will pay 25 cents for each number.

By Dr. S. Stewart, 7½ South James Street, Kansas City, Kansas—Nos. 1, 3, 4, of Vol. XVII.; also, No. 10, Vol. XVIII. Will pay 25 cents each.

By REVIEW—No. 6, Vol. XIX. (September, 1895) Will pay 25 cents.

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